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The financial systems and risk management principles of medieval French and Italian banks and their impacts on current banking systems

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3. INTRODUCTION

The history of finance is rooted in strong images and words that are still familiar to us. The French term "banqueroute", derived from the Italian banca rotta — the broken bench to signify the failure of a banker — illustrates both the materiality and the fragility of the first European banking experiments. Behind this anecdote lies a larger reality: between the thirteenth and fifteenth centuries, the Italian cities, the kingdom of France and Burgundian Flanders were the laboratory of decisive financial innovations. It was in this context that instruments such as bills of exchange, demand deposits, monti (consolidated public debt) and commenda contracts were born. These innovations were not mere technical tools: they reflected a profound upheaval in the way medieval societies conceived of risk, solvency and the circulation of capital.

The analysis proposed in this thesis focuses on the "Late Middle Ages", understood as the interval from the thirteenth century — the time when the first structured banking houses appeared in Tuscany and when the fairs of Champagne became a major center of financial exchange — to the end of the fifteenth century, which corresponds to the apogee and then the decline of the great Tuscan banking networks and the diffusion of financial practices to other European centers. in the context of the resurgent expansion. This choice makes it possible to focus on the emergence of banking logics in their medieval matrix without blurring the analysis by specifically modern changes (central banks, organized stock exchanges, capital markets).

Geographically, our analysis focuses on two main centres: Italy (Florence, Siena, Venice, Genoa) and France, in the broad sense of its possessions and zones of influence at the time, including Burgundian Flanders. This choice reflects, on the one hand, the national problematic announced — understanding the specificities and convergences of the French and Italian banking systems — and on the other hand, the political realities of the time: Flanders, integrated into the possessions of the Dukes of Burgundy vassals (more or less direct, particularly during the Hundred Years' War) of the crown of France, functioned as an extension of the French system while remaining in close contact with the Italian networks. As for the Knights Templar, although their order had an international dimension, their role in the financing of the Capetian monarchy justifies their integration into the French side of the analysis.

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In this spatio-temporal framework, the central question of the thesis can be summarized as follows: how have the financial systems and risk management principles developed by medieval French and Italian banks shaped modern banking? The interest of such a problem is threefold. From a historical point of view, it makes it possible to revisit practices often described in isolation — bills of exchange, monti, commenda contracts, demand deposits — by reconstructing them in an overall dynamic that prefigures financial logics that are still at work today. On a conceptual level, it questions the status of these innovations: simple pragmatic adaptations to an expanding trade, or genuine structural ruptures equivalent, for their time, to the modern financial revolutions of Amsterdam or London? Finally, on the disciplinary level, it links two often compartmentalized fields: medieval economic history and advanced corporate finance.

The objective of this literature review is therefore to provide a critical synthesis. The first step is to gather and compare the historical analyses available on Italy, France and Flanders, highlighting the convergences (for example, the centrality of risk and reputation management) and the divergences (degree of institutionalization, role of the State and private actors). It is then a question of identifying the contributions and limits of the existing literature: some aspects, such as the history of the Tuscan banks, have been extensively studied, while others — notably the French trajectory or the place of the Knights Templar — remain underexplored. Finally, the ambition is to link medieval innovations with modern concepts of advanced corporate finance. Each instrument or institution — bill of exchange, monti, commenda, Chambers of Accounts — will be analyzed in the light of contemporary notions such as capital structure, governance, risk management or the cost of capital, in order to show that current banking logics have their roots in medieval mechanisms.

To respond to this issue, the literature review is structured in four complementary parts. It opens with a conceptual and theoretical framework that defines the notion of "financial revolution" and specifies the instruments and approaches used. It continues with a chronological analysis, focusing on the Italian and French cases (including Flanders and the Knights Templar), in order to reconstruct the dynamics of financial innovations and their respective contexts. A third part adopts a transversal approach, comparing triggering factors, institutions, contributions to the field of corporate finance and historiographical debates. Finally, it concludes with a critical

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synthesis and contemporary perspectives, which link medieval legacies to current issues of regulation, governance and risk management in modern banking.

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4. LITERATURE REVIEW

4.1 Conceptual and theoretical framework

4.1.1 Defining the “bank" and its origins

Before addressing the medieval "financial revolution", it is important to clarify what the very notion of banking covers. The term, borrowed from the Italian banco — the moneychangers' bench in public squares — did not appear in French until the fifteenth century (Rey, 2010). However, the practice of banking, understood as a set of essential functions — receiving deposits, currency exchange operations, long-distance transfers and granting credit — is much older. Defining banking in functional rather than legal terms makes it possible to embrace historical continuity, from Antiquity to the end of the Middle Ages, while avoiding anachronism (Andreau, 1999; De Roover, 1948).

The earliest forms of banking activity can be traced back to the Greek trapezitai and Roman argentarii, who kept accounts, recorded deposits, and facilitated payments at public sales. Some agents, such as the mensarii, even occasionally fulfilled a quasi-public role in the event of a liquidity crisis (Andreau, 1999). But these practices were largely erased with the collapse of the Western Roman Empire. Between the fifth and eleventh centuries, the scarcity of exchange, monetary fragmentation and the Church's hostility to interest reduced banking activity to a limited role: essentially manual exchange and the custody of deposits. The condemnation of usury, as analysed by Le Goff (1980), did not abolish credit but constrained its exercise, forcing lenders to devise legal artifices to circumvent the prohibition.

It was from the twelfth century onwards that a real redeployment took place. The Crusades, by opening up new routes between East and West, and the rise of European fairs, particularly in Champagne, created a growing demand for secure long-distance payments. In this context, Italian bankers — Lucchese, Sienese and Florentines — organized themselves into guilds and merchant nations, gradually imposing their registers as legal proof and offering services that went beyond simple exchange (Braudel, 1979; Contamine, 2003). Their action contributes to the emergence of an institutional sphere where trust, backed by established rules, becomes a structuring asset.

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The thirteenth century was a turning point. To circumvent the canonical prohibition, bankers resorted to sophisticated contractual arrangements: remunerative exchange rate differentials, loans at sea risk (“grosse aventure”) where interest was only due in the event of a successful maritime expedition, and ecclesiastical and public rents treated as patrimonial income rather than loans (Le Goff, 1980). At the same time, the bill of exchange became a central instrument: it made it possible to transfer funds without cash, to introduce an implicit remuneration for time and to secure remote payments (De Roover, 1953). Coupled with advances in bookkeeping, it made it possible to have a current account and, by extension, a scriptural circulation based no longer on metal but on confidence in the banking house. Through this engineering, the bank began to generate a "private" currency, the ancestor of modern scriptural money.

It is in Italy that this transformation took on the greatest significance. Florence, Lucca and Siena saw the emergence of large family houses — Bardi, Peruzzi, Medici — which organized networks of subsidiaries and correspondents throughout Europe. These structures are based on family capital and tight reputational control: the solidity of a house directly determines the rate at which its bills of exchange are accepted, functioning as an implicit credit rating (De Roover, 1963; Hunt, 1994). Next to these banking colossi, the example of Leccacorvo even shows that less important banks can best demonstrate the density of the banking network and its competence to support transalpine trade. These examples show that banking is not only a financial service, but also a social and community instrument. According to family and diaspora links, it enables commercial extension throughout Europe.

Beyond the instruments and the actors, medieval banking participated directly in the rise of Western capitalism. By facilitating payments, securing credits, and making it possible to mobilize capital over long distances, it contributed to the rise of market circuits and the productive specialization of cities (Braudel, 1979). It also legitimized, through its role as an intermediary, the transformation of interpersonal trust into institutionalized trust, a condition for any sustainable financial development. The bank is thus at the same time a technique, an organization and a market infrastructure. Italy in the late Middle Ages constituted the cradle, but its logics went far beyond the Italian framework: they defined the foundations of a European banking system whose legacies still irrigate contemporary finance.

Thus, the history of banking practices, from their ancient embryonic forms to their medieval reinvention by Lombard and Florentine merchants, reveals the extent to which the notion of

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"banking" is inseparable from the economic, social and religious dynamics of pre-modern Europe. It also highlights the decisive role of contractual and organisational innovations which, by making possible the secure circulation of capital and trust between actors, lay the foundations for market capitalism. It was precisely on this heritage that what historians describe as the "medieval financial revolution" appeared, between the thirteenth and fifteenth centuries: a large-scale transformation that went beyond simple banking practices to affect all credit, debt and payment instruments, and which contributed to the lasting reconfiguration of European economies.

4.1.2 Defining the medieval “financial revolution”

4.1.2.1 Break or gradual evolution?

The notion of the "financial revolution" applied in the Middle Ages raises a central debate in economic history. On the one hand, the institutionalist perspective puts forward the idea of major ruptures, comparable to technical revolutions, which would have radically transformed financial structures. This conceptual framework, developed in particular with regard to modern England (North & Weingast, 1989; Dickson, 1967), can be transposed to the Middle Ages to question Italian and French innovations.

On the other hand, a historiographical tradition insists on the continuity and slowness of transformations. The great syntheses of economic history consider that medieval finance was constituted by an accumulation of practices, by successive strata, rather than by sudden breaks (Braudel, 1979; Van der Wee, 1977; Sapori, 1926).

This conceptual tension reflects two different visions of financial progress:

- The rupture thesis argues that the appearance of certain instruments — bills of exchange, double-entry bookkeeping, consolidated public debt — or institutions — public banks, stock exchanges — has profoundly transformed the conception of risk, financing and solvency. In this logic, the exchange fairs in Italy and Champagne, or the institutionalization of Italian public debts (the monti), constitute genuine "qualitative leaps"
- The evolution thesis emphasizes that these innovations derive from pre-existing practices: the bill of exchange extended manual exchange practices, medieval public

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debt was a continuation of princely loans, and the first stock exchanges were only the culmination of already structured markets (Braudel, 1979; Van der Wee, 1977)

A critical reading leads to overcoming this opposition. Medieval innovations did not arise ex nihilo: they were rooted in local practices, but crossed a threshold as soon as their diffusion became systematic and they were institutionalized by urban, princely or ecclesiastical authorities (Sapori, 1926). This process of codification and legitimation transforms empirical uses into veritable "financial revolutions".

This dialectic of rupture/continuity also sheds light on the perception of contemporaries: for the Florentine or Venetian merchants of the fourteenth century, the bill of exchange was not a conceptual innovation, but a practical tool that reduced the risks associated with the transport of cash. For the modern historian, however, it is a structuring innovation, the ancestor of modern payment instruments and cash management systems used today by multinationals.

4.1.2.2 Public finance and private financing: a founding distinction

Another essential key to understanding the medieval financial revolution lies in the distinction between public finance (that of states and cities) and private finance (that of merchants, bankers and commercial enterprises).

Public finance developed through the consolidated debts of Italian cities—the Florentine monti, which transformed forced loans into transferable securities, or the Venetian prestito, a veritable prototype of an urban bond market (Mueller, 1997). The royal taxation in France and the constituted annuities in the Flemish cities complete this landscape. These mechanisms already raise the question of sovereign solvency, an issue that remains central today, as the contemporary public debt crises have reminded us (Reinhart & Rogoff, 2009).

Private finance is based on the organization of the great Italian family houses — Bardi, Peruzzi, Medici (De Roover, 1963; Hunt, 1994) — merchant companies such as Datini's (Origo, 1957), the fairs of Champagne and Bruges, and networks of money changers and currency exchange dealers. These actors introduced risk management tools (geographic and functional diversification, commenda partnerships, marine insurance) and structure the foundations of corporate finance: governance, shared capital, accounting control (Goldthwaite, 2009).

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The originality of the Middle Ages lies in the constant interpenetration between these two spheres. Florentine bankers financed the papacy and the French crown; the kings borrowed from the Lombards and the Templars; The cities issued securities subscribed by private investors. In Genoa, this interpenetration reached an institutional dimension: the city-state recognized the legal validity of bank records as evidence before the courts and went so far as to require guardians of minors to deposit the minors' funds in them (Heers, 1961). By placing banking activity at the heart of asset protection and judicial functioning, the Genoese city-state offered banks an unprecedented legitimacy. This case illustrates the transformation of a private actor into a quasi-public institution, whose credibility was based as much on contractual trust as on the recognition of the law.

This porosity is directly echoed in advanced corporate finance. Even today, the distinction between public markets (sovereign bonds) and private markets (corporate bonds, corporate bank financing) remains structuring, but the interactions are constant: sovereign risk influences the cost of capital of companies, while the big banks play a pivotal role in both spheres. Here we find a historical continuity of a logic of co-dependence between public and private finance, which began in the Middle Ages.

4.1.2.3 Towards an operational definition of the medieval "financial revolution"

In order to move forward in the analysis, it is necessary to propose an operative definition of what is covered by the idea of "financial revolution" applied in the Middle Ages. Historiography hesitates between the approach of continuity, which sees in medieval innovations the culmination of already ancient practices (Braudel, 1979; Sapori, 1926), and the breakthrough approach, which emphasizes the thresholds crossed when truly structuring instruments such as bills of exchange or consolidated public debts appear (North & Weingast, 1989; Dickson, 1967).

From this perspective, a "medieval financial revolution" can be understood as:

A process of cumulative financial innovations which, by spreading and institutionalizing, durably transformed the structure of financial systems, integrating risk management, financing instruments and governance, and influenced both the public and private spheres.

This definition makes it possible to go beyond the strict opposition between rupture and evolution. Medieval innovations did not arise ex nihilo: they extended pre-existing uses—such

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as manual exchange or princely loans—but crossed a qualitative threshold when they became systematic and codified by cities, sovereigns, or the Church (Van der Wee, 1977). It is precisely this transition from practice to institution that justifies speaking of a "revolution" in the analytical sense.

Finally, this definition sheds light on the link between medieval history and contemporary finance. What matters is not only the instruments themselves, but their articulation into a viable system in a position to generate lasting effects — just like the financial markets nowadays, where regulation, standardization and institutional trust can turn local practices into global infrastructures. Thus, the medieval "financial revolution" can be seen as a pivotal stage in the genesis of modern finance, marked both by the continuity of practices and by the emergence of new logics of market structuring.

4.1.3 Key concepts (and their modern legacies)

4.1.3.1 Bill of Exchange <> Cash management and international transfers

The bill of exchange, perfected in the thirteenth century by Italian bankers and the fairs of Champagne, was one of the major innovations of the medieval "financial revolution". Both a payment instrument and a credit instrument, it made it possible to transfer funds without cash and to anticipate future settlement, thus reducing the risks associated with transporting cash (De Roover, 1953).

On the technical side, several characteristics deserve to be highlighted:

- Transmissibility: the bill could be transferred to a third party, but endorsement in the modern sense (signature formally transferring the claim) did not appear until the sixteenth century (Postan, 1973). This usage illustrates a gradual shift towards greater credit fluidity
- The role of the exchange fairs: in Champagne, then in Lyon and Bruges, these fairs functioned as real clearing houses. Letters were netted there, which considerably reduced the physical flow of cash (Van der Wee, 1977)
- Reputation as a criterion for solvency: the acceptance of a letter depended on the perceived solidity of the drawees and drawers. The bill of exchange was therefore based on a logic of credit risk management based on trust and information (Braudel, 1979)

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The modern legacy of the bill of exchange is twofold. On the one hand, it prefigures the secure interbank transfers (SEPA, SWIFT) that constitute the backbone of contemporary payment systems. On the other hand, its role as a multilateral clearing mechanism heralds modern clearing houses (e.g. CLS Bank for currencies, or clearing houses for derivatives). In corporate cash management, it can be considered as the ancestor of cash management and international netting systems, which are essential for managing the liquidity and exchange risks of multinationals.

4.1.3.2 Public debt <> Sovereign bonds and corporate bonds

Innovations in medieval public debt illustrate a fundamental shift: the shift from a forced levy to a voluntary investment.

- In Venice, the prestito was born as a forced loan from the citizens. From the fourteenth century, these debts became transferable and negotiable, creating an embryonic secondary market. As Mueller (1997) demonstrated, Venetian public debt thus took the form of luoghi, negotiable securities whose value depended on confidence in the Republic and whose fluctuations already resembled modern bond dynamics
- In Florence, the Monti were another major innovation: consolidated and perpetual public debts, equivalent to a sustainable annuity that the state-city remunerated at a fixed rate (Pezzolo, 2007). These securities, which could be transferred and transmitted to the heirs, provided the holders with a stable form of income and created a solid financial basis for the Commune
- In France, perpetual annuities fulfilled a similar role: they offered investors a hereditary annuity, making public credit more acceptable because it was assimilated to a transferable patrimony rather than a simple usurious loan (Contamine, Bompaire, Lebecq & Sarrazin, 2003). These instruments gradually spread an "urban financial culture", although socially limited to the merchant elites, ecclesiastical institutions and wealthy corporations

The modern legacy of these innovations is decisive. Medieval public debt is the direct matrix of sovereign bonds and, by extension, corporate bonds. The transition from the forced to the voluntary prefigures the contemporary logic of the rational investor, arbitrating his capital

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according to the return and the perceived risk. In advanced corporate finance, this milestone is critical: it sheds light on how government debt influences the yield curve and, in turn, the cost of private capital. In other words, the medieval monti and prestiti constitute the first skeleton of a European bond market, whose structuring logics — fixed remuneration, transferability, benchmark role — are still found today.

4.1.3.3 Double-entry bookkeeping<> Modern accounting and auditing

Double-entry bookkeeping, codified by Luca Pacioli in his Summa de Arithmetica, Geometria, Proportioni et Proportionalità (1494), is one of the most emblematic innovations of medieval finance. However, it was already practiced empirically by the great Tuscan and Venetian companies of the fourteenth century, which kept structured account books that made it possible to track both claims and debts simultaneously (De Roover, 1937).

Historiography has long insisted on its "revolutionary" character. But this reading has been nuanced. Researchers such as Basil Yamey have put the idea of a sudden break into perspective: according to him, the double-entry bookkeeping took several decades to become established, and many small companies continued to use single-entry registers until the sixteenth century (Yamey, 1949). The "Pacioli effect" must therefore be understood not as an invention ex nihilo, but as the institutionalization and dissemination of a practice already in use in commercial circles. Littleton (1933) has shown that double-entry is part of a cumulative evolution of accounting thinking, at the crossroads of merchant arithmetic and the growing need for internal control.

Functionally, the double entry represents a qualitative leap in risk management. It makes financial commitments visible, allows for a better valuation of assets and liabilities, and thus limits information asymmetries between merchants, creditors and partners (De Roover, 1955). In other words, it constitutes a first medieval response to the modern problem of asymmetric financial information, which is central to contemporary corporate finance.

The modern legacy is obvious: double-entry bookkeeping has become the foundation of auditing, regulatory reporting, and financial governance. It makes it possible to assess the risk of failure, the expected return and the quality of management. Moreover, it has instituted a universal standard of accounting transparency, which is still a condition for the confidence of the financial markets.

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4.1.3.4 Collective Partnerships <> Governance and Agency Theory

Medieval partnerships, whether Tuscan family companies or commenda contracts, represent an essential milestone in the history of financial governance. They introduced a new distinction between "active" capital — owned and managed by the merchant partner — and "dormant" capital — provided by the investor who did not participate directly in the management (De Roover, 1948; Lopez, 1976). This sharing of risk and profit is a direct prefiguration of modern issues of governance and agency theory.

The commenda, which was particularly widespread in Genoa, Pisa and Venice, functioned as an embryonic private equity or joint venture: an investor financed a maritime expedition while a merchant took care of its operational management. The merchant took over the risk of commerce and was given a part of profit; meanwhile, the investor bore the risk of losing his capital (Lopez, 1976). This structure is already a trade-off between return and risk, which is the basic logic of contemporary investment.

These organizational forms also formalize a division between passive owners and active managers which continues to be central within the current corporate governance debate (Jensen & Meckling, 1976). The control exercised by the family partners or by customary rules was intended to limit the opportunistic behaviour of managers, anticipating modern monitoring and alignment of interests mechanisms (agency contracts, reporting, incentive remuneration).

The modern heritage is particularly clear. The partnerships limited by shares of the seventeenth and eighteenth centuries extended the logic of the commenda by distinguishing between general partners (managers) and limited partners (investors). This development culminated in the creation of the Vereenigde Oostindische Compagnie (VOC) in 1602, the first joint-stock company with an organised secondary market. For the first time, the VOC institutionalized a genuine capital market, transforming one-off contractual logics into a permanent financing infrastructure. The historical continuity thus appears clear: from medieval commenda contracts to modern financial markets, the same governance and agency issues structure the relations between investors and managers.

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4.1.3.5 Medieval banks <> Modern universal banks

The great medieval banks, starting with the Peruzzi, the Bardi and especially the Medici, already performed a range of functions that anticipated those of modern universal banks: receiving deposits, granting credit, foreign exchange transactions, financing international trade and managing public debts. Their role was not limited to private finance: they also financed sovereigns, popes, and public institutions (De Roover, 1963; Hunt, 1994). They were therefore, from the fourteenth century, true "universal banks avant la lettre".

However, their history also reveals systemic fragility. The bankruptcy of the Peruzzi and Bardi families in the 1340s, following the default of Edward III of England (about 1.3 million florins), caused an international shockwave and highlighted the danger of an excessive concentration of sovereign risk (De Roover, 1963). A century later, the collapse of the Medici bank in 1494, linked to management errors, excessive dependence on sovereigns and Florentine political instability, confirmed that these houses could be victims of systemic risk before the letter (Hunt, 1994). These episodes demonstrate that the logic of “too interconnected to fail” — meaning, when one actor falls, he brings with him a whole system down — had already emerged in medieval Europe.

Their international character actually strengthens the comparison with modern banks. The Medicis had a string of branches throughout Florence, Avignon, Bruges, London and Venice. This transnational network functioned like a true financial multinational, based on the circulation of capital, book-based clearing and confidence in the reputation of the parent company (Sapori, 1926). These family structures prefigured contemporary banking conglomerates, capable of coordinating large-scale financial operations in several markets.

The modern heritage is twofold. On the one hand, contemporary universal banks (BNP Paribas, Deutsche Bank, JPMorgan Chase) play the same pivotal role, combining retail services, corporate finance and market operations. On the other hand, their interconnection today justifies international prudential regulation (Basel II/III/IV), just as the Florentine experience underlined the need for an institutional framework to avoid domino effects. The parallel between the fall of the Medici and the collapse of Lehman Brothers in 2008 illustrates a historical constant: financial innovations increase the efficiency of markets, but they also increase their systemic vulnerability.

In short, the medieval financial instruments studied — bills of exchange, public debt, double-entry bookkeeping, collective societies and large banks — should not be seen as historical

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curiosities, but as the archetypes of modern finance. For advanced corporate finance, the lesson is clear: the tools we use today (cash management, bond markets, governance, auditing, banking regulation) have their roots in the Franco-Italian practices of the late Middle Ages. The problem of this thesis is confirmed: medieval financial systems not only prepared modernity, they shaped the very logic of our current banking system.

4.1.4 Theoretical frameworks mobilized

To analyze the evolution of medieval financial systems and their influence on the structuring of modern banks, it is necessary to mobilize several theoretical frameworks. These approaches, which come from different but complementary disciplines, shed light on the continuities and ruptures in the history of finance.

- Institutionalism is an essential first analytical framework. Douglass North has shown that long-term economic growth depends on the emergence of "credible institutions," that is, stable and enforceable rules of the game that reduce uncertainty and secure trade (North, 1990). In the medieval case, this includes the legal recognition of bank records by Italian cities, the codification of financial contracts (bills of exchange, annuities), and the establishment of merchant jurisdictions. Institutionalist analysis thus makes it possible to interpret medieval banking not only as an economic practice, but also as a political and legal construction
- Empirical banking history provides a second approach, centered on the exploitation of archives, price series, exchange rates and public debt. Raymond de Roover (1948, 1963) paved the way with his studies on Florentine banks and the bill of exchange, showing that technical innovations only make sense when inserted into social and commercial networks. John Munro (2003) has insisted on the interactions between money markets, liquidity crises and public finance. This empirical framework makes it possible to anchor the analysis in the materiality of the instruments and in the chronology of crises, beyond theoretical generalizations
- Finally, modern corporate finance provides a third angle, mobilizing concepts such as the capital structure (Modigliani & Miller, 1958), agency theory (Jensen & Meckling, 1976) and transaction costs (Williamson, 1985). These models make it possible to reread medieval banking in contemporary terms: alignment of interests between partners and agents, management of accounting information as a reduction in information

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asymmetry, diversification and reputation as risk reduction strategies. They show that issues of governance, solvency and liquidity were already central to Tuscan and Sienese companies, and shed light on the relevance of their legacy in modern banking systems.

By combining these three frameworks, this thesis adopts an institutional, empirical and theoretical approach, allowing us to understand not only the instruments and practices of the Middle Ages, but also their role in the construction of financial logics that cross the centuries.

4.1.4.1 Institutionalist approach: rules of the game, credibility and coordination

The institutionalist approach, at the heart of the new institutional economics, conceives of institutions as "rules of the game" that structure incentives, reduce uncertainty, and lower transaction costs (North, 1990). From this perspective, the stability and credibility of commitments appear to be decisive conditions for financial development. The work of Douglass North and Barry Weingast on credible commitment and enforcement—particularly in relation to modern England (North & Weingast, 1989)—offers a conceptual framework that can be transposed to the medieval world: sustainable growth presupposes mechanisms that limit the arbitrariness of power and secure the value of debts.

Thus, instruments such as the bill of exchange or institutions such as the Florentine monti and the Venetian prestito acquire their "revolutionary" scope only when they cease to be mere one-off practices and become institutionalized devices. Their legal recognition, their codification by urban authorities and their social acceptance as legitimate claims transform tax levies into real transferable financial instruments (Mueller, 1997). Institutionalization thus operates as a turning point: it converts a contingent practice into a stable rule that gives credibility to public and private commitments.

Avner Greif brings a decisive complement to this reading. His work on the Maghribis and on the merchant diasporas underlines the role of informal institutions—reputation, relational contracts, collective sanctions—in a context where the state does not always guarantee enforcement (Greif, 1993; 2006). Transposed to the Italo-Flemish case, these mechanisms shed light on the way in which the Lombard guilds, the Florentine merchant networks or the fairs of Champagne and Bruges internalized contractual discipline: rigorous selection of partners, multilateral compensation, exclusion of fraudsters. The collective reputation of the marketplaces, backed by institutionalized settlement mechanisms, functioned as an implicit guarantee comparable to a modern market infrastructure.

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In Italy, the monti and the prestito must therefore be read as mechanisms of public credibility, transforming constrained taxation into consolidated, assessable and transferable assets. In France and Flanders, fairs have played a similar role as "market institutions", lowering transaction costs, harmonising information and organising liquidity by clearing. This institutional logic sheds light on the coherence of the medieval "financial infrastructure": it is based less on isolated technical innovation than on the framing and codification of collective practices.

However, this approach must be handled with caution. It tends to favour formalisation and stability, whereas medieval contexts were profoundly marked by exogenous factors: religious constraint (prohibition of usury), political risk (state bankruptcies, confiscations), and the violence of wars. To avoid a "strict institutionalist" bias, it is necessary to articulate formal institutions (consular jurisdictions, chambers of accounts, merchant statutes) and informal institutions (reputation, religious morality, community solidarity), while taking into account regional heterogeneities: Venice is not Florence, and Bruges is not Lyon.

4.1.4.2 Banking history: long-term, archives and micro-mechanics

Banking history, through major historiographical works, constitutes the second essential reading grid. Fernand Braudel insists on the importance of the "long term" and on the way in which financial innovations fit into a world economy structured by trade flows, fairs and maritime routes. His approach avoids the anachronism of immediate rupture and highlights the processes of gradual and cumulative accumulation (Braudel, 1979).

Armando Sapori, from the archives of Tuscan companies, opened the "black box" of the inner workings of banking houses. His analyses of correspondence and registers reveal the importance of accounting discipline, internal control and liquidity management in maintaining reputation, a central intangible resource (Sapori, 1926; 1955).

Raymond de Roover made a decisive contribution by carefully studying financial instruments. His research on the bill of exchange highlights its dual function as an instrument of payment and credit, while his study of the major Florentine companies (notably the Medici) illustrates the contractual and organizational logics that structured European finance (De Roover, 1948; 1953; 1963).

These approaches are extended with Reinhold C. Mueller, who shows the Venetian transition from forced prestito to a negotiable public debt, the true ancestor of modern bond markets (Mueller, 1997). Herman Van der Wee, for his part, analyses the evolution of the Bruges and

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Antwerp fairs, highlighting their role as clearing houses on a European scale and their contribution to the densification of financial networks (Van der Wee, 1963).

These contributions, based on a deep exploitation of archival sources, offer a rare granularity in the understanding of medieval banking practices. However, their limits lie in the limited formalization of economic incentives (information asymmetries, agency costs), as well as in a tendency to privilege the study of a particular place. This is why the use of modern corporate finance is necessary to formalize and model the underlying mechanisms highlighted by banking history.

4.1.4.3 Modern Financial Theories: Capital Structure, Transaction Costs, and Governance

The third approach used is that of modern corporate finance. While it does not directly describe medieval realities, it is a valuable conceptual toolbox for illuminating the logic and implications of medieval practices.

The theorem of Modigliani and Miller (1958), by postulating that the value of a company is independent of its capital structure in the absence of frictions, makes it possible to identify by contrast the major frictions of the Middle Ages: taxation and the prohibition of usury (which imposed circumvention via annuities or dry exchange), high insolvency costs (bank failures and state bankruptcies), and information asymmetries related to accounting opacity before the generalization of the double entry bookkeeping. These constraints made the capital structure highly relevant, and explain the diversity of financing choices observed in banking houses and in medieval public finances.

The theory of transaction costs, put forward by Coase (1937) and developed in greater depth by Williamson (1985), offers another perspective: faced with monetary fragmentation, the costs of securing payments and the plurality of jurisdictions (canon law, local customs), medieval actors tended to internalize transactions in family networks or to resort to hybrid contractual forms such as the commenda or fairs of exchange.

Contemporary theories of the structure of capital also provide relevant frameworks. The trade-off between debt profits and bankruptcy costs can be applied to Florentine monti or perpetual annuities, interpreted as trade-offs between the cost of financing and the risk of financial distress. The implicit hierarchy of financing choices, described by Myers and Majluf (1984), sheds light on the priority use of family equity, followed by banking relationships, and then more public instruments when accounting opacity was reduced. Finally, the theory of agency

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(Jensen & Meckling, 1976) makes it possible to interpret the commenda as a first form of separation between active and dormant capital, already laying the foundations for the problems of incentives and supervision.

Risk management is part of this same continuum. Sea loans, the diversification of trade routes and the multiplication of correspondents constitute primitive forms of hedging and portfolio management. The chain failures of Tuscan banks, such as the Bardi and Peruzzi banks, already illustrate a logic of systemic risk, comparable to the modern liquidity crises that led to prudential regulations (up to the Basel II, III and IV Accords).

These modern theoretical frameworks, although anachronistic in their formulation, thus make it possible to translate medieval innovations into actionable analytical categories. The bill of exchange can be understood as an instrument for reducing transaction costs and managing liquidity risk; annuities and monti as choices of leverage and maturity under institutional constraints; the double-entry bookkeeping as an information infrastructure reducing asymmetries; the commenda as a governance contract in the face of agency risks; and the major universal banking houses, like the first to face the dilemma between diversification and systemic vulnerability.

By combining these three approaches — institutionalist, historical and financial — we have an integrated method of analysis. Institutionalism makes it possible to identify the conditions under which a practice becomes a system; banking history provides the empirical granularity; and corporate finance formalizes economic mechanisms, providing a direct bridge to understanding contemporary banking systems. This triptych will guide the analysis of the Tuscan, Venetian, French and Flemish cases.

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4.1.5 Explicit link to advanced corporate finance

One of the fundamental challenges of this thesis is to demonstrate that medieval financial innovations should not be studied as simple historical curiosities, but as the direct ancestors of the tools and problems of advanced corporate finance. The issues of financing, solvency, transparency and reputation, which structure financial markets and governance practices today, were already at the heart of banking and market practices in the thirteenth to fifteenth centuries.

Thus, the bill of exchange can be read as a first response to the problem of liquidity and security of remote payments, a problem that modern treasury deals with via interbank payment systems and cash management (De Roover, 1953). Similarly, the Florentine monti and the Venetian prestiti, by transforming forced loans into transferable and negotiable securities, prefigured contemporary sovereign bonds and already raised the question of the cost of public capital and its impact on the private sphere (Mueller, 1997).

Reputation, a central intangible resource for Florentine and Sienese banking houses, played a role comparable to today's credit ratings, as assigned by rating agencies: conditioning access to financing and determining the spread applied to transactions (Sapori, 1955; De Roover, 1963). The bankruptcies of the Peruzzi and Medici, through their domino effect, finally illustrate systemic risk dynamics comparable to those observed during the modern banking crises, from 1929 to 2008.

The parallel is therefore not only heuristic: it reveals a continuity of financial logics that gives the problem its full relevance. As Modigliani and Miller (1958) have shown, the structure of capital takes on its full importance in a context marked by frictions: this was already the case in the Middle Ages, when the prohibition of usury, monetary fragmentation and dependence on sovereigns imposed complex trade-offs between equity, market credit and public debt.

This thesis is therefore part of a twofold perspective: to restore the specificity of medieval practices by placing them in their historical context, while interpreting them through the concepts of advanced corporate finance (governance, liquidity risk, capital structure). This double reading makes it possible to show that the innovations of the Middle Ages are not outdated relics, but structuring milestones in the long history of European financial systems.

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4.1.5.1 Capital markets and public debt: the ancestor of modern bonds

The Florentine monti, the Venetian prestiti and the French rents constituted the first organized forms of large-scale public financing as early as the thirteenth century. Their objective was twofold: to provide liquidity to governments and to offer lenders an interest-bearing and transferable asset. This mechanism already brings these securities closer to modern sovereign bonds: fixed-income instruments, associated with an implied return, whose value depended on the perceived creditworthiness of the issuer (Mueller, 1997; Pezzolo, 2007).

In Florence, the monti gradually transformed tax debts and forced loans into consolidated, transferable and partially negotiable securities. This innovation marked the emergence of a quasi-secondary market. In Venice, the system of prestito, which was initially compulsory, evolved towards transferable debts, giving rise to one of the first stable urban financial markets, where securities were exchanged at a discount or a premium depending on the budgetary situation (Mueller, 1997). In France, perpetual annuities, developed from the thirteenth century onwards, offered lenders an annuity that could be passed on to their heirs. They helped to institutionalize hereditary, patrimonial savings (Leguay, 1984).

However, the comparison with modern bonds must be nuanced. The social diffusion of these claims remained limited: they mainly concerned the urban elites, the merchant guilds and certain religious institutions. We cannot therefore speak of "mass savings", but rather of elitist, concentrated and socially circumscribed savings (Braudel, 1979).

From an advanced corporate finance perspective, medieval public debt can be analysed as the equivalent of corporate bonds: the state acted as a borrowing entity whose solvency conditioned access to savings and the level of interest rates. The shift from forced to voluntary financing directly foreshadows the modern logic of risk-return and heralds the central concept of the cost of capital (North & Weingast, 1989). As today, when a downgrade in the sovereign rating makes it more expensive to finance companies, medieval royal bankruptcies – such as the default of Edward III of England, which caused the bankruptcy of the Peruzzi and Bardi families (De Roover, 1963) – led to a domino effect on the entire banking networks, compromising liquidity and confidence.

In short, these medieval capital markets, although socially limited, laid the foundations for a sustainable financial logic:

- Conversion of debt into transferable securities
- Emergence of a secondary market

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- Interdependence between public solvency and banking stability

These principles remain at the heart of contemporary bond markets, confirming that medieval public debt was a veritable matrix of modern finance.

4.1.5.2 Governance: from commenda to agency theory

The commenda, the dominant contractual form of Mediterranean trade from the twelfth to the fourteenth centuries, illustrates in an exemplary way the way in which the Middle Ages invented governance mechanisms to respond to information asymmetries between financiers and managers. In this contract, a limited partner (socius stans) provided the capital while an active partner (tractator) travelled and conducted the operations. Profits were shared according to a ratio fixed ex ante, while losses were, except through the fault of the merchant, assumed by the capitalist (Lopez & Raymond, 1955; Pryor, 1977).

The innovation of the commenda lay in the clear separation between dormant and active capital, thus anticipating modern issues of governance. The challenge was twofold: to ensure that the manager did not misappropriate funds or prioritize his own interest, and to encourage the investor to maintain his confidence in a framework where state courts offered little contractual protection. The medieval response mobilized three main mechanisms:

- Reputation: a merchant known for his honesty and efficiency could hope to attract capital again, while a failure led to his exclusion from the market (Greif, 1989)
- Family and diasporic networks: in Tuscany, as in the Islamic world with the qirad, dense communities allowed for informal surveillance and collective punishment in case of opportunism (Udovitch, 1970)
- Contractual sharing of profits and losses: the distribution key partially aligned the incentives; the active merchant had an interest in maximizing the gains since he received a substantial fraction of them

These logics find a striking resonance in the modern theory of agency. Jensen and Meckling (1976) have shown that the separation between ownership and control generates agency costs: risks of opportunistic behaviour by the manager, supervisory costs for the investor, and residual losses linked to divergence of interests. The commenda can thus be interpreted as a direct ancestor of the joint venture contract or the limited partnership: it sought to limit agency costs through a combination of reputation, social control and financial incentives.

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In advanced corporate finance, these issues remain at the heart of governance debates. Minority shareholders facing the managers of a public limited company, or institutional investors in private equity, use different tools (voting rights, contractual clauses, audits, variable remuneration), but respond to the same fundamental logic: control and alignment. The legacy of the commenda thus demonstrates that governance problems are not a modern invention, but structural constants as soon as capital and labor are separated.

In short, the commenda reveals how much medieval solutions anticipated the conceptual frameworks of modern finance. It proves that medieval banking and finance were not only means of payment, but already laboratories of contractual governance and risk organization – the beginnings of the debates that still irrigate contemporary corporate finance.

4.1.5.3 Risk control: from bills of exchange to the Basel Accords

The medieval bill of exchange, perfected by Italian bankers as early as the thirteenth century and distributed via the fairs of Champagne and then Lyon and Bruges, was a major innovation in risk management. It was not only a technical instrument for the transfer of funds, but a tool to respond simultaneously to two central threats:

- Counterparty risk, linked to the debtor's solvency
- Liquidity risk, linked to the physical transport of cash in a context of monetary and political instability (De Roover, 1953)

By centralising payments at exchange fairs and using the multilateral netting mechanism, merchants massively reduced cash flows and pooled risk. The acceptance of a letter was based on the reputation of the drawer and the drawee, which amounted to an implicit assessment of credit risk, comparable to a credit rating “avant la lettre” (Kindleberger, 1993).

These medieval mechanisms foreshadow modern financial risk management practices. In the field of corporate treasury, netting and cash pooling techniques are based on the medieval logic of clearing in order to minimize interbank transfers and optimize liquidity within a group (Van der Wee, 1977). In the financial markets, contemporary clearing houses (CCPs) play a similar role: they centralise positions, impose margin calls and limit the risk of cascading defaults – a function already anticipated by medieval fairs.

However, the spectacular failures of Tuscan banks — Peruzzi and Bardi in 1345, Medici in 1494 — show that these instruments were not enough to neutralize systemic risk. Massive exposure to sovereign debts (Edward III of England) revealed the vulnerability of a system

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where diversification remained insufficient and where public regulation was embryonic (Hunt, 1994). These collapses are the first examples of a banking domino effect, akin to modern crises.

The parallel with contemporary collapses is striking, in particular the collapse of Lehman Brothers (2008), which illustrates an identical dynamic: interconnection of balance sheets, widespread loss of confidence and a sudden contraction in global liquidity (Gorton, 2010). It is in response to this type of vulnerability that prudential regulation was institutionalized in the twentieth century with the Basel Accords (initiated in 1974, and later formalized in 1988, 2004, and 2010), aimed at strengthening capital, controlling liquidity risk and reducing the risk of contagion.

Ultimately, the trajectory from the bill of exchange to the Basel Accords reveals a fundamental continuity: each financial innovation enhances efficiency but simultaneously generates new systemic risks. The medieval dilemma between innovation and stability remains that of modern finance: how to preserve the fluidity of payments and access to credit, while preventing the interconnection of actors from transforming an isolated default into a global crisis.

4.1.5.4 Continuity of issues: financing, solvency, transparency and reputation

Through the instruments and practices observed between the thirteenth and fifteenth centuries, a striking continuity with the core challenges of contemporary finance emerges. The fundamental logics of financing, solvency, transparency and reputation were already present in medieval circuits, although in embryonic or informal forms.

- Financing: raising capital was an ongoing challenge, whether it was financing a commercial expedition by commenda, supporting a war by a Venetian prestito, or securing papal payments via Florentine companies. The fundamental issue was identical to the one nowadays: how to mobilize funds as inexpensively as possible and in such a matrix of trust, which could stimulate investors (De Roover, 1963; Mueller, 1997). This logic predicts the modern capital markets, where companies and governments make choices between debt and equity on the basis of cost and perceived risk.
- Solvency: medieval bankruptcies — the private ones (Bardi, Peruzzi) and the public ones (royal defaults in France or England) — had already posed the problem of boundaries of borrowing and financial viability. As Kindleberger (1993) pointed out, the historical record of banking crises and sovereign defaults is consistent with a constant: excessive leverage and over-concentration in a few counterparties reliably

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produce instability. This problem remains at the heart of the modern theory of capital structure and prudential regulation

- Transparency: the introduction of double-entry accounting, codified by Pacioli in 1494 but practiced as early as the fourteenth century by the major Italian companies, was an initial response to the problem of information asymmetry. It made commitments visible and improved internal and external surveillance (Yamey, 1949). Similarly, family audits and cross-checking by local agents have reduced information asymmetries, anticipating the modern role of financial auditing and reporting
- Reputation: finally, reputation was a strategic intangible asset. The acceptance of a bill of exchange depended largely on trust in the drawer and his banking house, as did access to foreign exchange fairs or international correspondents. This logic is directly comparable to the role of modern credit rating agencies: just as rating today determines the cost of capital and access to the bond market, medieval reputation conditioned liquidity and access to dominant financial networks (Sapori, 1926; Hunt, 1994)

Analysis of these parallels reveals that the foundations of advanced corporate finance have their roots in medieval practices. Capital markets, contractual governance, risk management, solvency, transparency and reputation are universal issues that span centuries and institutions. The great Italian and French banks of the Middle Ages were not only the technical ancestors of modern institutions: they laid the conceptual and practical foundations of contemporary finance.

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4.2. Historical Evolution of Medieval Banking Systems (Chronological Approach)

4.2.1. Italy, the medieval banking matrix (thirteenth to fifteenth century)

4.2.1.1. Economic, religious and political context

Italy between the thirteenth and fifteenth centuries was a unique laboratory for the development of merchant capitalism and its financial auxiliaries. Urban density, productive specialization, political fragmentation, but also the institutional capacity of cities, combined with the intensity of commercial and intellectual circulations, create a particularly favorable terrain for the emergence of original financial engineering (Braudel, 1979). It was in this context that the great Tuscan banking houses appeared and were consolidated, that money and public debt markets were structured in Venice and Florence, and that new instruments of payment and credit such as bills of exchange, current accounts and clearing mechanisms were spread. All these elements are at the heart of our research question, since they directly foreshadow the modern logics of financing, risk management and solvency.

Italy's economic dynamism is based first and foremost on a highly developed commercial and manufacturing urban fabric. Florence, Siena, Pisa and Lucca dominated wool and silk production, while Venice and Genoa prospered thanks to their role as maritime and colonial intermediaries (Lopez, 1976). This increase in trade is leading to an increasing monetization of the economy and an increased demand for financial services. Economic actors are seeking to secure distance transfers, convert multiple and unstable currencies, finance stocks and shipments, and smooth their cash flow – which, in contemporary vocabulary, corresponds to cash management issues. The minting of the Florentine florin (1252) and the Venetian ducat (1284), two reference currencies whose reputation was based on the stability of weight and fineness, provided a trusted standard that facilitated contracts and bookkeeping. These coins thus play a role comparable to that of an implicit rating: their credibility conditions the cost of transactions and access to financing (Spufford, 1988).

This dynamism is based on particularly dense and adaptive urban institutions. Italian municipalities set up consular courts, merchant statutes and fair courts that guaranteed the execution of contracts (Greif, 2006). They also developed public accounting and financial offices that stabilized the commitments of the city-state. Venice is an exemplary case here: the prestito, initally a forced loan, evolved in the fourteenth century into transferable claims (luoghi) and then into negotiable securities, outlining one of the first urban quasi-bond markets (Mueller, 1997). In Florence, the monti consolidated the municipality's debt into transferable

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securities, thus transforming one-off tax levies into durable financial assets (Molho, 1971). These innovations herald the modern logic of sovereign bonds: fixed remuneration, transferability and the embryo of a secondary market. For advanced corporate finance, this institutionalization of public credit is crucial: it creates a proto-sovereign yield curve that directly influences the cost of private capital, just as it does today.

At the same time, religious constraints play a structuring role. Christian doctrine condemned usury, that is, the explicit remuneration for the use of money over time. Instead of repressing finance, this ban encouraged the creation of contracts that were enforceable by canon law (Le Goff, 1980). The bill of exchange, in the inclusion of an exchange rate differential that tacitly remunerates credit, becomes a key instrument (De Roover, 1953). The transformation of loaned capital into authorized periodic income occurs through annuities which can be both ecclesiastical and public. The sea loan (or bottomry loan), in which interest is only due in the event of the success of the maritime expedition, and maritime insurance are part of the same logic. At the end of the fifteenth century, the Montes Pietatis, instituted by the Franciscans, offered a charitable loan intended for the most modest, showing that the doctrine could also promote the emergence of inclusive institutions (Pullan, 1971).

The organisation of Tuscan banks illustrates this dynamic of innovation. Based on family networks, they coordinate subsidiaries and correspondents in Florence, Avignon, Bruges, London, Lyon and Barcelona. They use inter-house current accounts and exchange fair clearing to reduce cash transport and, consequently, liquidity risk (Hunt, 1994). The reputation of the banking house then becomes a decisive intangible capital. A true medieval equivalent of a credit rating system, it conditions the acceptance of bills, the level of confidence of counterparties and the spread required by lenders (Sapori, 1955). In a logic directly comparable to modern finance, reputation plays the role of a key economic variable, modulating the cost of financing and access to the market. This internationalization of networks, which was particularly marked for Sienese bankers, can be represented by the following map, which shows their area of influence in Europe as early as the thirteenth century.

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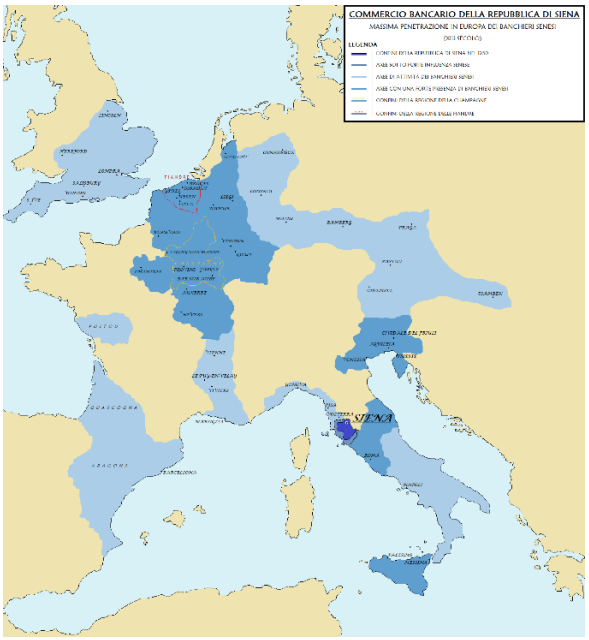

Map showing the penetration of Sienese bankers in Europe

(Universita di Siena, 2018)

This ecosystem, as sophisticated as it was, remained exposed to external shocks. The Black Death of 1348 disrupted demography, affecting the wage bill, prices, and therefore the profitability of production sectors (Herlihy, 1997). Inter-communal conflicts, Guelph and Ghibelin rivalries, and sovereign defaults weakened the solvency of the banks. The bankruptcy of the English crown in the mid-1340s led to the collapse of the Peruzzi and Bardi families, while the House of Medici disappeared at the end of the fifteenth century in a mixture of political reversals and liquidity crises (De Roover, 1963). These episodes show that the interconnection of balance sheets – between houses, between banks and sovereigns – was already generating systemic risk. For a contemporary reader, they foreshadow the costs of financial distress and justify, in retrospect, the implementation of prudential rules and mechanisms for active maturity management.

Venice is a notable singularity in this panorama. The solidity of its executive, the relative stability of its tax system and the efficiency of its consolidated debt system make it possible to transform urban savings, which are certainly elite but relatively diffuse, into stable resources. The money market is sufficiently developed to observe practices close to transferability and organized liquidity, reducing legal uncertainty and transaction costs (Mueller, 1997). Venice thus shows how a city-state can generate a functioning financial market through the credibility of its commitments, without having the bureaucratic attributes of a modern state.

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Finally, the development of a culture of writing and control is a pillar of this Italian matrix. From account books (“libri di ragione”) to the codification of double-entry bookkeeping by Pacioli in 1494, accounting allowed for better internal monitoring, inter-house comparison, and closer control of managers (Yamey, 1949). Although its appropriation was gradual, it marks a turning point in the reduction of information asymmetry, which is the linchpin of access to finance. This information infrastructure, comparable to the modern role of auditing and reporting, facilitates the circulation of risk and, in some cases, its mispricing.

Thus, in Italy between the thirteenth and fifteenth centuries, finance did not appear as a secondary activity but as a real economic and political infrastructure. It coordinates production and exchange, translates public power into financial securities and transforms religious and political constraints into effective contracts. Through its instruments (bills of exchange, annuities, insurance), its organizations (family networks, contractual governance) and its institutions (merchant jurisdictions, debt offices), it establishes a tripartite framework that still underpins contemporary finance. In other words, the "Italian matrix" does not only bequeath techniques, but it installs logics of risk, reputation and commitment that still structure our banking and financial systems today.

4.2.1.2. Major innovations: bills of exchange, demand deposits, monti (public debt), double-entry bookkeeping

Medieval Italy was not limited to fertile ground for trade: it was the melting pot of financial innovations that would transform banking practices in the long term and lay the foundations of modern systems. These innovations did not arise ex nihilo but were rooted in previous practices, which Tuscan and Venetian bankers would systematize, perfect and institutionalize (Braudel, 1979). Their spread between the thirteenth and fifteenth centuries explains why historians speak of a veritable Italian "financial revolution".

The bill of exchange is a perfect illustration of this transformation. Initially a simple payment mandate between two merchants operating in different places, it quickly became a multifunctional instrument:

- Secure payment: it avoids the transport of cash over long distances, reducing the risk of robbery

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- Credit instrument: the exchange rate difference or the settlement period allows for an implicit remuneration of the loan, circumventing the prohibition of usury (De Roover, 1953)
- Risk management: by clearing at foreign exchange fairs, it reduces the need for cash and mutualises liquidity risk

The fairs of Champagne, then those of Lyon and Bruges, functioned as real clearing houses: letters were exchanged, paid off and sometimes discounted, creating an embryonic interbank market (Van der Wee, 1963). The reputation of the signatories determined their acceptance, which introduced an implicit "credit rating" logic. The parallel with modern payments is obvious: the bill of exchange prefigures SWIFT, SEPA or CLS Bank, systems that today organize multilateral clearing and interbank trust.

Demand deposits are another key innovation. As early as the fourteenth century, merchants entrusted their funds to Florentine bankers, who offered payment by account entry or book transfer (Sapori, 1955). This system transformed bankers into real liquidity intermediaries, centralizing resources and disseminating a "bank money" distinct from coin money (“specie”). However, this confidence remained fragile: the slightest rumour of difficulty could provoke massive withdrawals (bank runs), such as those that precipitated the fall of the Scali (1326) or the Peruzzi (1343). These episodes foreshadow the structural fragility of modern deposit banks, as studied in the models of Diamond & Dybvig (1983).

Consolidated public debt represents a third major innovation. In Florence, the monti transformed one-off tax levies into transferable claims, comparable to perpetual annuities (Molho, 1971). Venice's prestito transformed from a forced loan into a transferable security which established one of the first urban bond markets (Mueller, 1997). These instruments had several functions:

- Financing wars and infrastructure
- Offering urban elites a safe and remunerated investment
- Institutionalizing a sustainable financial link between rulers and governed

As early as 1345, the Venetian Grain Office established a balance sheet distinguishing assets, doubtful receivables and preferred liabilities, showing an almost modern awareness of public

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reporting (Mueller, 1997). This document illustrates the growing proximity between medieval public management and the logic of modern financial reporting.

Balance Sheet of the Grain Office, 1345

Assets	Liabilities
854,000 lire di piccoli of which: long-term loans (bad): 96,000 100,000 bad debts and spoiled wheat: 130,000 326,000	755,000 lire di piccoli [235,938 du.] (debts to "speciales persone")
Net ("boni denari et debiti"): 528,000 [165,000 ducats]	Net negative balance: 227,000 [70,740 du.]

Balance Sheet of the Venetian Grain Office, 1345
(Mueller, R. C. (1997). The Venetian Money Market: Banks, Panics, and the Public Debt, 1200–1500, p. 364)

While these titles were reserved for an elite (nobles, corporations, religious institutions), they mark a key stage: the transition from occasional levies to negotiable debt. In a contemporary reading, monti are the direct ancestor of sovereign bonds: they introduce an implied yield curve, influence the cost of private capital and anchor the culture of bond investment.

Finally, double-entry bookkeeping, codified by Luca Pacioli in 1494 in his Summa de arithmetica, geometria, proportioni et proportionalità, but already practiced by Tuscan companies in the fourteenth century, constitutes an innovation in governance (Pacioli, 1494). It is based on the systematic balance between debit and credit, offering a coherent vision of assets and liabilities. Although its adoption was gradual and uneven, it strengthened transparency, facilitated the control of managers and reduced information asymmetries between partners (Yamey, 1949). Moreover, it allowed comparisons across banking houses and an internal discipline close to modern auditing.

These four innovations – bills of exchange, demand deposits, consolidated public debt and double-entry accounting – form a systemic foundation. Each of them addresses universal financial issues: securing payments, managing liquidity, financing at scale and reducing information asymmetry. Their genesis in medieval Italy shows that banking modernity was not born of a rupture in the seventeenth century but of a cumulative process of innovations institutionalized from the late Middle Ages.

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4.2.1.3. Banking crises and risk management: the Florentine bankruptcies and their lessons

While the Italian financial innovations of the late Middle Ages enabled the rise of the major banking houses, they also revealed a fundamental reality: financial intermediation is based on risk management that is both inventive and fragile. Diversification, internal control and governance, as well as high-profile bankruptcies, highlight the extent to which medieval Italian banking was confronted with issues that remain at the heart of contemporary corporate finance.

The Tuscan banking houses, notably the Bardi and the Peruzzi, adopted strategies of spatial and functional diversification. From Florence, they established subsidiaries and correspondents in London, Bruges, Avignon, Barcelona and Naples, in order to attract a variety of financial flows: management of payments for merchants, advances to sovereigns, financing of international trade (spices, English wool), foreign exchange operations (De Roover, 1963; Hunt, 1994). This geographical dispersion reduced the risks specific to a local market and made it possible to benefit from differentiated tax and monetary regimes.

This logic is reminiscent of modern portfolio theory: diversification reduces idiosyncratic risk but does not protect against systemic risk. However, as the Peruzzi story shows, geographical diversification is not enough if systemic counterparties – in this case sovereigns – defaults.

To limit the risks of opportunism and fraud, these banking houses developed internal control and accounting systems. Local factors reported to the Florentine partners through regular correspondence, and the account books, kept in an increasingly standardized manner, made it possible to compare the performance of the subsidiaries. Reputation capital, which was essential for maintaining the confidence of customers and partners, depended largely on this accounting rigour and internal discipline (Sapori, 1926). These mechanisms prefigure modern corporate governance practices: monitoring managers, aligning interests, producing reliable information to reduce asymmetries.

However, the fragility of the Tuscan banking system was expressed in a series of spectacular bankruptcies:

- Leccacorvo (Lucca): at the beginning of the fourteenth century, this house went bankrupt after being overexposed to foreign exchange transactions during the fairs of Champagne. Its collapse illustrated the banks' dependence on settlement centres and announced the centrality of liquidity in the survival of institutions (De Roover, 1948)

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- Buonsignori and Tolomei (Siena): in Siena, the two great companies of the thirteenth century, after having dominated the management of papal taxation, went bankrupt in the years 1290–1300. Their setbacks marked the decline of the city financially, paving the way for Florentine hegemony (Armstrong, 1989)
- Scali (Florence): in 1326, this leading house, involved in the financing of the English monarchy and in papal payments, collapsed, sending shockwaves through the Florentine economy (Hunt, 1994)
- Bardi and Peruzzi (Florence): their bankruptcy in the 1340s, following the default of Edward III of England (about 1.3 million florins), led to the disappearance of the two most powerful Florentine banks. The interconnection of their networks of correspondents caused a domino effect and a generalized crisis of confidence (De Roover, 1963; Hunt, 1994)

These bankruptcies illustrate two major lessons. On the one hand, the concentration of sovereign risk weakened the entire network: the default of a king was enough to shake powerful companies. On the other hand, the interconnected nature of balance sheets has generated a domino effect, already heralding the logic of modern systemic risk. The failure of these houses led to a geographical rebalancing of banking power: while Florence and Siena declined, Bruges, then Antwerp, Amsterdam and finally London emerged as new European financial centres (Braudel, 1979).

However, Florence was able to bounce back thanks to the rise of a new banking dynasty: the Medici. Founded in 1397 by Giovanni de Medici, the Banco dei Medici became the dominant institution of the fifteenth century (De Roover, 1963). It took up some of the principles of the Bardi and Peruzzi families, but perfected them: close family governance, strengthened accounting control thanks to double-entry bookkeeping, and a more prudent diversification strategy, with subsidiaries in Rome, Bruges, London and Avignon placed under close supervision (Goldthwaite, 1987). The bank also secured a decisive political proximity, by becoming the privileged banker of the papacy, which guaranteed it stable deposits and commissions (Hunt, 1994).

This success was based on a double innovation: organizational (tight governance, internal control) and political (backing by the papacy and the Florentine oligarchy). But this dependence was also a weakness: when the popes diversified their deposit banks and Florence entered into

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crisis, the house declined, until it disappeared at the end of the fifteenth century (De Roover, 1963).

In this sense, the Medici embody both the resilience of the Florentine banking system after the bankruptcies of the fourteenth century and its structural limitations. They show that strong governance can prolong stability and inspire modern risk management practices, but also remind us that political dependence and a concentrated client base always expose us to systemic fragility.

Thus, the Tuscan bankruptcies of the fourteenth century and the rise of the Medici appear to be the direct ancestors of modern banking crises and regulations: they remind us that finance is based on trust, that this trust can be destroyed by the interconnection of balance sheets, and that only a combination of diversification, internal control and regulation can ensure the stability of the system.

4.2.1.4. Modern inheritances: reputation, credit rating, monti and bonds

One of the most striking legacies of Italian banking innovations lies in the way in which medieval actors conceived and institutionalized reputation as a financial resource. The great Florentine banking houses, such as the Bardi and the Peruzzi, knew that their ability to attract deposits, to have their bills of exchange accepted, and to maintain the confidence of the rulers was based on the perception that others had of their solidity and probity (Sapori, 1955). In a context where accounting information remained imperfect and where the circulation of news depended on commercial correspondence, reputation functioned as a signal of creditworthiness, comparable to a credit rating assigned by a contemporary rating agency. The spreads applied during settlements or the conditions of participation in fairs directly reflected this implicit valuation (De Roover, 1963). In the same way that today a "AAA" or "junk" rating influences the cost of financing a company or a state, medieval reputation modulated the cost of capital and conditioned access to the dominant financing circuits. The continuity here is striking: modern markets did not invent the link between reputation and funding, they simply institutionalized it in a standardized, quantitative form.

A second major legacy is found in the creation of the Florentine monti and the Venetian prestiti, which are true ancestors of sovereign bonds (Mueller, 1997). These instruments, initially conceived as forced loans, have gradually acquired a voluntary and transferable dimension, creating a rudimentary but efficient market for government securities. Their operation already reveals the main logics of contemporary debt: definition of a fixed yield, possibility of sale,

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emergence of an embryonic secondary market. These innovations, even if they remained socially limited to an urban elite and religious institutions (Contamine, 2003), mark an essential milestone in the history of the financialization of public power. From the perspective of advanced corporate finance, monti can be read as the precursors of a bond market whose function is twofold: to offer investors a stable remuneration and to provide the issuer with sustainable resources. They also foreshadow the construction of a sovereign yield curve, which, as today, directly influences the cost of private capital.

In this respect, the example of the Monte dei Paschi di Siena (MPS) perfectly illustrates the continuity between these medieval instruments and modern institutions. Founded in 1472 as Monte Pio by the magistrates of the Republic of Siena to offer loans secured by pledges at moderate rates to the poorest, MPS remains the oldest bank in operation today. From the outset, it associated a social logic — fighting against usury and exclusion — with a municipal institutional guarantee, prefiguring the articulation between private finance and public interest. In the seventeenth century, the bank consolidated its solidity by backing its commitments with the communal revenues from the Maremma's pastures (the paschi), which gave it its current name (Asso, 1997). This mechanism, which guaranteed claims with an identifiable public resource, is directly reminiscent of the modern logic of collateralization of sovereign debts and their implicit rating. Through its hybrid status, at once a civic institution, a social tool and a banking player, Monte dei Paschi embodied a form of historical continuity: the institutionalization of the monti and their transformation into a sustainable bank, whose longevity illustrates the robustness of this model.

These two legacies – reputation equated with a credit rating and public debt equated with a sovereign bond – show that medieval Italy not only invented technical tools, but that it laid the conceptual foundations of modern finance. Reputation as an intangible asset, public debt as a transferable and negotiable instrument, and the institutional example of Monte dei Paschi as a direct legacy, constitute three dimensions that have spanned the centuries and are now at the heart of international financial regulation (Goodhart, 2011).

In conclusion, the Italian matrix from the thirteenth to the fifteenth century must be understood not as an exotic parenthesis in banking history, but as a structuring stage in the genesis of European financial systems. It has bequeathed to modernity not only instruments and institutions, but also the logics of governance, risk and solvency that still irrigate our contemporary practices. This historical continuity explains why this research question finds its

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starting point in Italy: it is here that finance has become an indispensable infrastructure of economic and political life.

The rest of our analysis will now move to France and Flanders, where the Champagne fairs, the Lombard bankers and the Flemish networks will take up, adapt and transform this Italian heritage. These territories, although different in their organisation and constraints, will play an equally decisive role in the dissemination of financial innovations and in the establishment of an integrated European banking system.

4.2.2. France and Flanders: financial power at the service of the State and trade (13th – 15th century)

4.2.2.1. The fairs of Champagne: financial infrastructure and the rise of bills of exchange

Before opening the analysis, let us clarify our scope: in the comparative perspective adopted here, we include Flanders in the French area, not because of anachronism, but because the Flemish space was inscribed, in the fourteenth and fifteenth centuries, in the politico-institutional orbit of the Burgundian principality — a Valois-Burgundian dynasty, resulting from a French appanage and vassal of the King of France for the duchy — while maintaining close interdependencies with the French places (Champagne fairs and then Lyon fairs) (Braudel, 1979). This clarification is only intended to account for a continuity of circulations, practices and institutions that structure a coherent North-South financial space for the purposes of our analysis.

At the heart of this system was the system of the Champagne fairs, a veritable "highway" of payments and credits between Italy and northern Europe from the middle of the thirteenth to the beginning of the fourteenth century (Braudel, 1979). Organised in an annual cycle between Lagny, Bar-sur-Aube, Provins and Troyes, these fairs offered an institutional framework of rare density: public security (safe-conducts, fair police), specialised and rapid courts (summary justice of fairs), standards of use (payment calendars, exchange tables), warehouse and market infrastructures, and above all a cashless settlement mechanism that made it possible to back up physical exchanges with a circulation of book entries (Braudel, 1979). In doing so, fairs drastically reduced transaction costs and operational risk (metal transport, theft, losses), while

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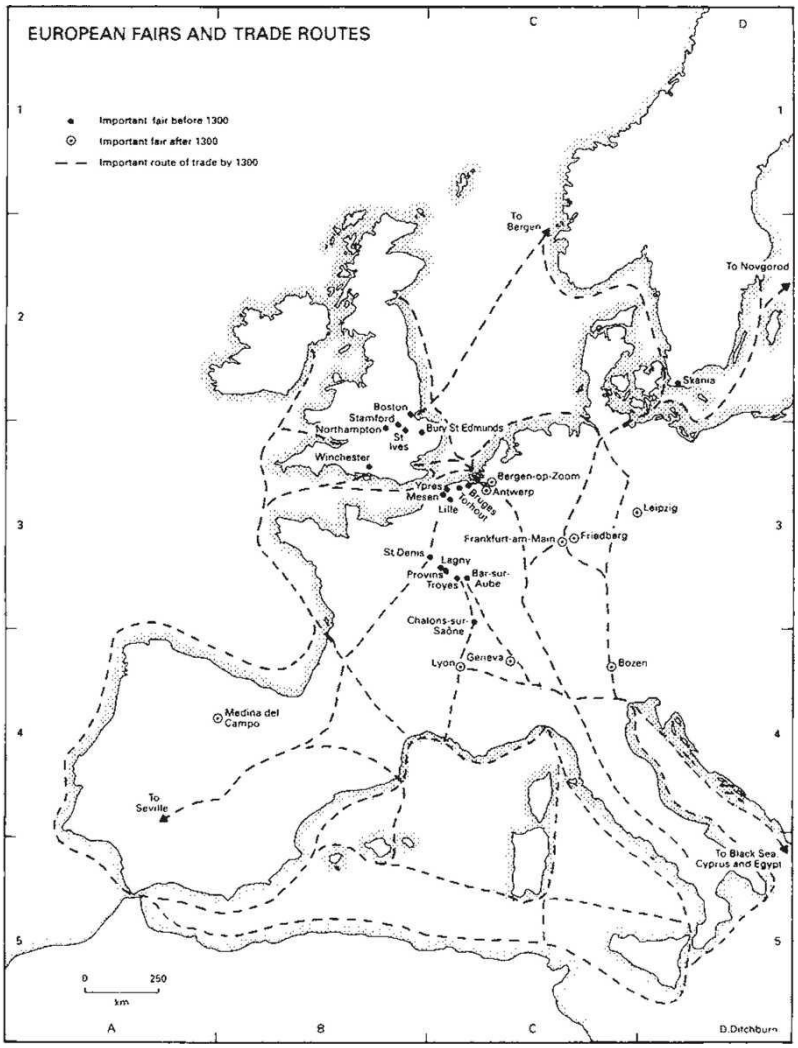
accelerating capital turnover: it is the medieval equivalent of a clearing hub. The fairs of Champagne were not only regional markets, but were a European crossroads connecting Italy, France, Flanders, England and all the way to the Baltic. As the map below illustrates, they were at the heart of major trade flows, which is why they also became hubs of financial innovation.



Medieval fairs and trade routes in Europe
(Mackay A. & Ditchburn D. (1999). Atlas of Medieval Europe)

The bill of exchange finds its natural environment there. Initially thought of as a payment mandate between two places, it becomes both a means of settlement and a credit instrument: the exchange rate differential (agio/disagio) incorporated the implicit remuneration of time (De Roover, 1953). Above all, the letter was part of a calendar of fairs that set the pace for acceptance, presentation and maturity, so that payments were made by multilateral clearing: debts and cross-claims between houses were partially cancelled on "payment days", and only net balances were settled in cash (De Roover, 1953). One can already discern here, in its earliest

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form, the logic of contemporary clearing houses and interbank netting: by compressing cash needs, we lower the liquidity risk and, by extension, the cost of circulating capital of merchant-bankers.

This infrastructure is not neutral from a risk management perspective. First, it socializes information: the reputation of a house — its ability to honour its bills at maturity — circulates from fair to fair through the correspondence and "opinions" of peers (De Roover, 1953). In a world of relative accounting opacity, this reputation functions as an implicit credit rating: it conditions the acceptance of the effects, the level of aggio and, in the final analysis, access to the dominant circuits. Secondly, it institutionalizes enforcement: the existence of fair courts, with rapid procedures and credible sanctions, reduces contractual uncertainty, which would be formulated today in terms of reducing agency and contract enforcement costs. Third, it standardizes practices: published exchange rates, convergent bookkeeping, known payment schedules, all of which increase the predictability of flows and facilitate cash management—a direct ancestor of modern cash management.

From a macro-financial point of view, the Champagne fairs were also an interest rate bridge between Italy and the North: they transmitted price information (exchange rates, risk premiums) and contributed to the emergence of a partially integrated monetary area. Their relative decline, from the beginning of the fourteenth century, was due less to an "obsolescence" of the technique than to geopolitical and commercial reconfigurations (relocation of roads and rise of Flemish maritime circuits), and the infrastructure was recomposed further south in Lyon and further north in Bruges/Antwerp, where we will find the same logics of compensation and, soon, more advanced forms of market (Van der Wee, 1963; Braudel, 1979). This institutional continuity – Champagne – Lyon/Bruges – Antwerp – shows that medieval financial innovation was cumulative: it moved, expanded and became articulated with more powerful states, without breaking with its principles (De Roover, 1953; Braudel, 1979).

From an advanced corporate finance perspective, the lesson is twofold. On the one hand, fairs are a pure case of reducing transaction costs through standardization and enforcement, and reducing the need for cash through multilateral netting — two drivers at the heart of the cost of capital and the management of working capital requirements today. On the other hand, they illustrate the co-determination between market institutions and instruments: without a calendar, legal framework and a marketplace, the bill of exchange would remain an isolated contract; Without letters and without accounts, the fair would not become a clearing house. It is precisely this co-production between institutions and instruments that explains the lasting impact of fairs

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in the formation of a European financial system in proto form — and that paves the way for the transfer of the model to Flanders, where Bruges and then Antwerp will push further the integration of exchanges, deposits and markets, while connecting to public finances (Van der Wee, 1963; Braudel, 1979).

4.2.2.2. The Crown and the Royal Debt: Tax Innovations, First Bond Loans

In France, the monarchy's ability to borrow depended first of all on the stabilization of taxes and the consolidation of a control bureaucracy. Until the beginning of the fourteenth century, resources remained largely extraordinary (currency debasements, one-off aids, sales of crown lands), which made royal solvency difficult to understand for outside lenders (Favier, 1978). The use of institutional intermediaries with their own credibility – first and foremost the Order of the Temple, a banker and depositary of the Crown – compensates for this structural weakness: centralization of revenues, maintenance of deposits, long-distance payments, in short, a veritable state treasury infrastructure before the letter (Barber, 1994; Barber, 2006). The suppression of the Order in 1312 revealed the monarchy's dependence on this intermediation: it was necessary to reconfigure the financing channels, relying more on the Lombard and then Florentine networks and on the cities (Favier, 1978; Barber, 2006).

The real shift occurred in the fifteenth century when the taille was made permanent in 1439: the tax ceased to be a contingent resource and became a regular base capable of backing up debt commitments (Contamine, 2003). The Crown, or the cities acting on its behalf, then made massive use of constituted annuities (perpetual or life annuities): in exchange for capital, the State promised an annual income, recorded and paid out of identified revenues. Legally specific and socially situated, these annuities function economically like fixed-income securities comparable to sovereign debt: transferable, sometimes negotiable, and valued by the actors according to the king's reputation for payment (Contamine, 2003). Expanded urban savings, although limited to elites, corporations and religious institutions, thus have access to a regular investment; mirroring, the state converts its fiscal capacity into interest-bearing financial assets. The fluctuation of the capitalized value of annuities according to fiscal and political tensions outlines a proto-secondary market and, with it, an implied yield curve (Favier, 1978; Contamine, 2003).

This dynamic is accompanied by an increase in information and control infrastructures. The Chambers of Accounts (in Paris and in the provinces) record, verify and audit public claims and payments, providing traceability that reduces the asymmetry of information between sovereign

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and creditors (Contamine, 2003). In terms of corporate finance, this "audit bureaucracy" reduces the risk premium demanded by subscribers: the service of the annuity becomes more predictable, the commitment more credible, and the sovereign's implicit rating is improved. The return provided by the annuity (and the required spread) then reflects investors' anticipation of fiscal discipline and the quality of budget execution.

Compared to Italy, the French trajectory is later but with the same logic. As early as the fourteenth century, Venice transformed the forced prestito into transferable and, gradually, negotiable securities (Mueller, 1997), when France first had to anchor its debt fiscally via the taille and provide a legal framework for its circulation via registration. In both cases, the state converts a power to levy taxes into de facto obligations. For advanced corporate finance, the ripple effect is clear: the emergence of a sovereign benchmark (proto-rate curve) sets the benchmark for the cost of private debt, guides the maturity of liabilities and structures the perception of credit risk in the economy. In other words, the normalization of royal annuities foreshadows the contemporary relationship between government bonds and corporate bonds.

These developments shed direct light on our problem. Medieval French financial innovations are not mere war expedients: they introduced, in the European space, the fundamentals of bond financing — (i) permanent tax base as a guarantee of the issuer, (ii) transferability and registration of liabilities, (iii) audit infrastructure reducing opacity, (iv) reputation/implicit rating guiding spreads. This institutional and informational bundle creates an environment where public debt becomes effectively investable and, by extension, where private players can finance themselves at costs indexed to the quality of the sovereign issuer. France does not "create" the modern bond, but it stabilizes the economic grammar of it: transforming taxes into assets, reputations into spreads, administration into the reduction of asymmetries — exactly the logic that still irrigates our contemporary bond markets.

4.2.2.3. The Lombards and usurers: credit, religious and institutional supervision

The presence of the "Lombards" — a generic term designating in France and Flanders merchant-bankers from northern Italy, often from Lucca, Asti or Milan — was a key vector in the diffusion of Italian credit techniques to northern Europe. From the thirteenth century, they set up shop in the fairs of Champagne, in Paris, in the major Flemish cities and as far away as England, offering loans at interest, currency exchange services, and money transfers (Braudel, 1979). Their role must be understood in a twofold logic: on the one hand, as an intermediary allowing sovereigns, merchants and individuals to access liquidity; on the other hand, as

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ambivalent figures of the "usurer", despised by ecclesiastical discourse but tolerated out of economic necessity (Le Goff, 1980).

Their activity is part of a constrained religious framework. Canon law, by condemning usury (explicit remuneration for the time of money), forced the Lombards to resort to circumvention mechanisms: cash exchange with a remunerative differential, sale-and-repurchase contracts, loans backed by pledges, or even the constitution of rents, tolerated as the alienation of property in exchange for income (Le Goff, 1980). This contractual engineering, inherited from Italian practices, is adapted to local contexts according to the margins of tolerance left by the ecclesiastical and municipal authorities. The archives of Siena and Lucca, analysed by Armando Sapori (Studi di storia economica, 1955), show the sophistication of these techniques as early as the thirteenth century; Their transposition to French fairs illustrates a process of institutional dissemination at the heart of our inquiry.

Institutionally, the Lombards were governed by privileges and urban charters, which set the maximum loan amounts, the implicit interest rates, and the conditions for collateral seizure in the event of default. In Paris, as Philippe Contamine (2007) has shown, the monarchy oscillated between repression (notably under Saint Louis, who expelled usurers in 1253) and pragmatic tolerance, dictated by its own financial needs. In Flanders, their role was more durable: the cities of Bruges and Lille granted them a specific status, as they provided both short-term credit to merchants and advances to the urban authorities. They thus embody an interface between private and public finance, heralding the practices of municipal and then state financing.

The most relevant aspect for advanced corporate finance lies in the way these Lombards managed reputational risk. As their activity was constantly threatened by religious or political prohibitions, their survival depended on their ability to inspire confidence despite stigmatization. The reputation of the network, backed by a mother house in Italy, played the role of an implicit rating: the stronger and more recognized the house, the more its local branches could lend at competitive rates. This is an ancestor of the role of rating agencies, which today condition access to credit for companies and governments. The history of the Lombards also illustrates a phenomenon that is familiar to us: that of regulatory risk. Like contemporary banks subject to the Basel Accords, they operated under the constant threat of having their activity banned, taxed or limited — and therefore had to diversify their operations geographically to reduce this risk (Braudel, 1979).

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On the historiographical level, Jacques Le Goff (Le Goff, 1980) has underlined the ambivalence of the perception of the Lombards: demonized figures of usury in sermons and literature, but in practice indispensable to the functioning of the monetarized economy. This contrast reflects the dialectic between norm and practice, central to medieval financial history: far from being mere outcasts, the Lombards were decisive players in the expansion of the credit sphere north of the Alps. Their action also paved the way for the emergence of alternative solutions: in the fifteenth century, the Franciscan Montes Pietatis presented themselves as a charitable response to usurious credit, but in reality used very similar tools (pledge, short-term loans), thus institutionalizing part of Lombard expertise within a morally acceptable framework (Le Goff, 1980).

In conclusion, the Lombards embody a transfer link between Italian banking engineering and French and Flemish financial needs. Their role in structuring credit markets, adapting them to religious and political constraints, and managing reputational and regulatory risk early resonates with current issues in corporate finance: dependence on regulation, the cost of legal risk, the importance of reputational signals in setting interest rates. Through them, the continuity of a financial capitalism emerges in which the margins for innovation are often found in the adaptation of existing instruments to institutional constraints — a continuity that directly links the Middle Ages to the functioning of modern banking systems.

4.2.2.4. Flanders: Bruges as a financial hub, interactions with Italian bankers

The rise of Bruges as a financial centre of northern Europe, from the fourteenth to the fifteenth century, must be placed in a particular political context: Flanders, integrated into the powerful Burgundian dominion, remained lands legally and culturally linked to France, although they enjoyed a strong urban autonomy (Van der Wee, 1963). Their merchant dynamism, backed by the drapery and maritime trade of the North Sea, made them a place of convergence where Italian, Hanseatic, English and Flemish merchants could cross their interests. The city then became a financial crossroads, where Italian innovations were deployed and where new market practices were developed. This centrality is reflected in the Venetian exchange rate lists themselves: Bruges, like Paris and London, appears as a regularly quoted reference centre, which confirms its role as a European financial hub (Mueller, 1997).

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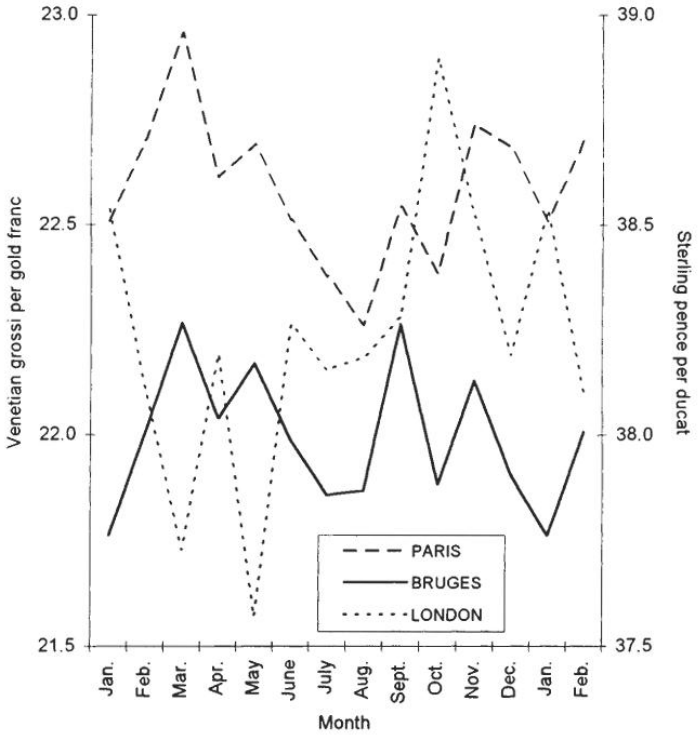

Seasonal Pattern of Exchange Rates between Venice and Major European Financial Centers (1399-1410)
(Mueller, R. C. (1997). The Venetian Money Market: Banks, Panics, and the Public Debt, 1200–1500, p. 602)

As early as the fourteenth century, Florentine, Lucchese and Genoese bankers set up branches in Bruges to accompany the trade flows of English wool, Flemish cloth and Mediterranean spices (De Roover, 1948). These local branches, organized along the lines of Tuscan family companies, practiced deposits, current accounts, and above all bills of exchange, an instrument that had become essential for securing remote payments and reducing the transport of cash. The exchange fairs, formerly concentrated in Champagne, gradually moved to Bruges, which became an international clearing centre. This transfer illustrates the logic of continuity: Italian innovations do not disappear, they move and adapt to a new institutional setting (Braudel, 1979).

What makes Bruges special is the meeting between Italian bankers and Flemish merchants, which gave rise to an integrated credit and exchange market. As Herman Van der Wee has shown (Innovations in Financial Technique in Bruges, Antwerp and Amsterdam, 1963), the city became a place where multilateral clearing became systematic: bills of exchange were settled during fixed periods, balances were netted across several houses, and exchange rates were fixed by a market consensus. This organization anticipates the logic of modern clearing houses, where

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counterparty risk is reduced by netting and centralization of settlements. We see the first standardization of financial practices on a transnational scale.

The role of Bruges is not limited to instruments: it also touches on the sociology of actors. The city attracted Italian companies (the Medici opened a branch there in 1439), but also local and Hanseatic financiers. These interactions produce contractual hybridizations: the Italian commenda find equivalents in the Flemish partnerships; Genoese maritime loans inspired local forms of insurance and risk sharing. Historiography has sometimes highlighted the tensions between Italians and Flemings, but, as De Roover (1963) notes, the complementarity is obvious: the Italians brought financial techniques, the Flemish provided commercial outlets and a solid institutional base (urban jurisdictions, commercial privileges).

For advanced corporate finance, Bruges illustrates a key step in financial integration: the diffusion of transaction costs. The bill of exchange, used systematically in an organized urban framework, makes bilateral settlement more efficient; multilateral clearing lowers liquidity risk; The collective fixing of exchange rates reduces uncertainty and introduces a proto-benchmark rate. These mechanisms are directly reminiscent of those that govern interbank systems and international clearing houses today. In addition, the simultaneous presence of local and foreign players prefigures the contemporary logic of global financial markets, where universal banks operate alongside local markets.

In conclusion, Bruges was not only a relay of Italian innovations: it was the laboratory of Europeanization. By welcoming and adapting the practices of Tuscan and Genoese bankers, combining them with Flemish business traditions, it has created a transnational financial infrastructure that heralds the future Antwerp and Amsterdam stock exchanges. Its political position, under the influence of France but autonomous in its urban institutions, made it a privileged ground for experimenting with hybrid finance, at the crossroads of public, private and commercial logics. For our analysis, Bruges thus embodies the first stage of European banking and financial integration, whose logics — reputation, clearing, standardization of instruments — still irrigate our contemporary markets.

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4.2.2.5. Modern link: royal debt and corporate bonds, fairs and organized financial markets

Comparing the medieval royal debt with contemporary bond markets does not imply equating one with the other, but identifying structural continuities that shed light on our problem. When the French Crown transformed a fiscal capacity (permanent taille from 1439) into transferable liabilities (constituted annuities), it made the same economic gesture as any modern issuer of debt: converting foreseeable future flows into immediate capital, under the watchful eye of creditors attentive to the quality of the information and the credibility of the execution (Contamine, 2003). The presence of a registration and control bureaucracy (Chambers of Accounts) then plays, all things considered, the role of an "audit" infrastructure that reduces the asymmetry of information and the risk premium demanded by the holders—a logic that can be found today in the effect of financial information and certification practices on the cost of debt of issuers (Contamine, 2003). In other words, the medieval rent is not the modern "obligation", but it shares its underlying mechanisms: a stable base, a regular service, transferability, and a valuation sensitive to the reputation—proto-rating—of the issuer (Braudel, 1979).

From the point of view of advanced corporate finance, this grammar allows us to understand two profound transmissions. First, the emergence of a sovereign reference: the capitalization of annuities as shaped by fiscal and political tensions outlines a proto-sovereign yield curve that limits the price of risk in the economy, just as, today, corporate bond spreads are backed by the government curve. The private "cost of capital" is implicitly aligned with the perception of public risk, including in the Middle Ages (Contamine, 2007; Braudel, 1979). Secondly, the creation of a socially situated investor base — urban elites, solvent guilds, religious institutions — already introduces considerations of liquidity, investment horizon and segmentation, which herald the contemporary diversity of holders (funds, insurers, households). However, there is a nuance: these savings remained concentrated, far from the mass diffusion of modern bond markets (Contamine, 2007).

The parallel "fairs ↔ organized markets" is based on a similar observation. The fairs of Champagne and Bruges instituted settlement calendars, swift jurisdictions, common exchange tables, and above all mechanisms for multilateral clearing of bills that drastically reduced the need for cash and liquidity risk (De Roover, 1953; Van der Wee, 1963; Braudel, 1979). This is the fundamental logic of an organised market: standardise (contracts, maturities, procedures), ensure credible enforcement (enforcement), and centralise (at least periodically) settlement to

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limit bilateral exposures. The most accurate contemporary comparison is not so much the stock exchange as the clearing ecosystem: clearing houses and safeguards that transform a dense network of bilateral liabilities into net balances, with a mechanical reduction in the risk of chain default. Fairs did not have a continuous order book or market making in the modern sense, but their market regulation, exchange rate "fixings" and settlement sessions made them a credible institutional matrix for the circulation of instruments (De Roover, 1953; Van der Wee, 1963).

These continuities allow us to revisit, with our analytical tools, the rationality of medieval actors. From the perspective of capital structure, the medieval state was already arbitrating between "internal" financing (immediate fiscal resources) and "external" financing (rents)—a trade-off that became relevant precisely because frictions were high: insolvency costs (defaults, bankruptcies), informational opacity, legal fragmentation. This grid, inherited from Modigliani-Miller, trade-offs, pecking orders and agency theory, is here only a retrospective tool (without claiming that these theories literally describe the Middle Ages) to express observable mechanisms: debt is chosen because it disciplines and is supported by an identifiable base; its maturity and service are calibrated under the constraints of reputation and liquidity (Modigliani & Miller, 1958; Myers & Majluf, 1984; Jensen & Meckling, 1976). On the trade fair side, the reduction of transaction costs (standardization, calendars, netting) and the limitation of execution risks (fast jurisdictions) correspond, point for point, to the modern determinants of liquidity premiums and transaction discounts applied to traded securities (De Roover, 1953; Van der Wee, 1963).

Finally, it is important to note the systemic scope of these measures. The interconnection of medieval balance sheets — banking houses, cities, sovereigns — creates cascading vulnerabilities; fair-based clearing and the formalization of public debt are partial antidotes to this. Modernity has institutionalized these responses (central clearing, prudential requirements), but intuition was already present in the fifteenth century: reducing gross exposures, making information verifiable, smoothing liquidity (Braudel, 1979; Goodhart, 2011). It is precisely because the medieval matrix stabilized these logics—reputation as a rating proxy, rents as quasi-bond debt, fairs as organized proto-markets—that it shaped our financial architectures in the long term.

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4.2.2.6. The Knights Templar: Religious Order and Banking Prefiguration

It is logical to integrate the study of the Order of the Temple within the France & Flanders section: the Order was born in France (Council of Troyes, 1129), set up its decision-making centre and treasury in Paris (the Temple), served the Capetian monarchy directly, and its liquidation (1307–1312) was a decision of the French royal power (Barber, 1994 ; Barber, 2006). Although its network was transnational, its institutional roots and political destiny are profoundly French, which justifies this positioning — and allows for a structured comparison with the Italian banking model centered on family banking houses.

Born as a religious-military order intended to secure pilgrimages and routes to the East, the Temple quickly became a major financial player through the accumulation of donations (land, rents), privileges and papal exemptions (Forey, 1992). This patrimonial base served as the basis for the functions of a deposit bank for nobles, abbeys and sovereigns: to guard treasures, collect revenues, and make interregional payments based on a network of commanderies covering Latin Europe and the Mediterranean (Barber, 1994). The Temple of Paris has, on several occasions, served as a royal treasury for the Crown of France: the preservation of funds, the execution of payments and transfers, which, in fact, brings the Order closer to a settlement bank in the service of the State, long before the emergence of modern public banks (Barber, 2006).

The technical heart of the system lay in the secure mobility of value. A depositor (pilgrim, merchant, lord or officer of the king) could hand over funds to one commandery and, equipped with a sign or a writing of authentication, use them in another, sometimes at a great distance: a secure transfer mechanism that prefigures (without being identical to) the modern letter of credit and payment order (Forey, 1992). The Order also collected, centralized and routed resources related to ecclesiastical decimes intended for expeditions to the East, then pre-financed part of the logistical costs (transport, supplies), coordinating several commanderies: a quasi-syndicated, multi-establishment logic “avant la lettre” (Barber, 1994; Barber, 2006). Finally, the loans granted to the sovereigns — backed by domanial or fiscal revenues — placed the Knights Templar in a sovereign credit function; they became the prince's bankers as well as the depositaries of his treasury (Barber, 2006).

The Order's financial efficiency is based on hierarchical and centralized governance. The commanderies produced accounts, were the subject of regular visits and regular reporting; the flows were consolidated by the Parisian treasury, and monastic discipline (rule, obedience, sanctions) acted as an internal rule of execution (Forey, 1992). This architecture reduces

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information asymmetries and limits operational risks: it heralds modern principles of internal control and compliance, where traceability and standardization of procedures secure the deposit and payment relationship. From an advanced corporate finance point of view, the Order internalized transaction costs (proprietary network, homogeneous procedures), lowers counterparty risk (collective reputation), and transforms reputation into an implicit rating: the "Templar brand" is equivalent, in the eyes of depositors, to a very high-quality rating, reducing the risk premium required on their services. Sovereign risk, on the other hand, remained central: Philip the Fair's unilateral decision to arrest the Knights Templar (1307) and seize their property (1307–1312) laid bare the political fragility of an institution that was nevertheless technically sound (Barber, 2006). This exogenous break offers a medieval prototype of systemic shocks: the disappearance of a settlement and trust node causes a rapid reallocation of deposits, a recomposition of payment circuits, and a temporary increase in transaction costs and risk premiums for the Crown and its partners.

The Templars' multi-activity — deposits, inter-jurisdictional settlements, sovereign loans, fiduciary management — prefigures universal banking (multiplicity of businesses on the same balance sheet platform) and settlement banking (security, centrality, interconnection). Their role as custodian of assets on behalf of third parties (royal treasuries, ecclesiastical property) anticipates the function of trustee and custodian bank, with issues of separation of assets and fiduciary duty comparable to modern standards. Their internal discipline (procedures, reporting, visit audits) heralds a culture of compliance: codification of processes, independent controls, accountability of employees. Finally, their fall is a reminder of an invariant: the dependence of financial infrastructures on the political and regulatory environment. From this point of view, the medieval intuition of prudential supervision and regulation (centralization, limitation of diversions, control of flows) would find, centuries later, a formalization in contemporary prudential frameworks (capital, liquidity, risk concentration), the history and economic logic of which have been analyzed for the modern era by Goodhart (2011) — useful here by analogy to shed light on the rationality of a risk framework as soon as interconnected settlement nodes appear.

In contrast to Italy — a competitive network of family banking houses, municipal public debt markets (monti, prestiti), and innovation "by the market" — the Templar case illustrates a

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French trajectory of centralized institutional innovation: a single actor, legitimized by the Church and the king, internalizes payment, deposits, and credit in a pan-European network. The two lineages (Italian and French) converge, however, on the mechanisms that still underpin corporate finance: (i) reputation/rating as a condition for access to financing and risk pricing; (ii) information infrastructure (book-keeping, control) as an asymmetry reducer; (iii) settlement security (reduction of liquidity and counterparty risk); (iv) exposure to sovereign risk. It is precisely this convergence of logics, more than the identity of forms, that explains the enduring medieval imprint on contemporary banking architecture.

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4.3. Cross-sectional analyses and critical debates

4.3.1. Triggering factors

The emergence and diffusion of medieval financial innovations should not be seen as the result of abstract creativity, but as a response to structural constraints that pushed cities, states, and merchants to invent or institutionalize new mechanisms. Three major drivers appear repeatedly in the literature: the pressure of wars and sovereign funding needs, the expansion of international trade and its infrastructures, and finally banking crises which, by revealing systemic fragilities, have often provoked new regulations.

The armed conflicts of the fourteenth and fifteenth centuries were one of the most decisive drivers of innovation. The need to pay professional armies, maintain fortifications or finance prolonged campaigns forced sovereigns and cities to resort to new arrangements. Venice imposed the prestito on its citizens, which was at first assimilated to a disguised tax, before these claims became transferable and tradable in the form of luoghi (Mueller, 1997). In Florence, the Monti consolidated the municipality's debts into transferable securities, laying the foundations for a proto-bond market (Sapori, 1955). In France, the monarchy used constituted annuities backed by tax revenues, a mechanism that made it possible to obtain a flow of cash while transferring the solvency risk to creditors from urban elites, corporations or religious institutions (Contamine, 2007). These mechanisms already reflect the modern logic of sovereign bonds: arbitrating between immediate financing and the risk of future over-indebtedness.

International trade was another determining factor. The rise of the Champagne fairs, then Bruges and Lyon, brought together merchant flows linking the Mediterranean and the North Sea, generating a pressing need for secure and standardised payments. The bill of exchange, used from the thirteenth century onwards, made it possible to settle at a distance, to avoid the risky transport of cash and to embed a form of implicit credit through the exchange rate differential (De Roover, 1953). Moreover, its systematic use in fairs allowed multilateral netting mechanisms that anticipated the modern logic of clearing houses (Van der Wee, 1963; Spufford, 1988). These financial infrastructures, by setting settlement schedules and strengthening enforcement through the collective reputation of the fairs, reduced transaction costs and streamlined large-scale trade finance.

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Finally, crises and bankruptcies revealed the vulnerability of the system and played a role in accelerating regulations. The default of the English Crown in the middle of the fourteenth century led to the fall of the Peruzzi and Bardi families, whose balance sheets, massively exposed to royal debts, could not absorb the shock (De Roover, 1963). In Venice, several banking panics in the fourteenth century prompted the Republic to establish rules governing deposits and to intervene directly to preserve monetary stability (Mueller, 1997). In France, the suppression of the Order of the Temple at the beginning of the fourteenth century dramatically illustrates the dependence of financial institutions on sovereign power: beyond political motivations, the dissolution of a large-scale proto-banking network showed how much deposit security was based as much on economic soundness as on institutional protection (Barber, 2006). These episodes, by revealing the costs of financial distress and the interconnection of balance sheets, are already reminiscent of the logic of systemic risk, which calls for forms of regulation and supervision — a dynamic that can be found, transposed, into contemporary history with international mechanisms such as Basel II, III or IV (Goodhart, 2011).

Thus, wars, international trade and crises should not be seen as mere contexts, but as real triggers. By creating financing pressures, security needs or solvency shocks, they have accelerated the institutionalization of innovations and shaped the logic of financial systems. The continuity with contemporary finance is obvious: even today, it is exogenous shocks — conflicts, globalization, crises — that precipitate the evolution of instruments and regulations. The Middle Ages thus provided a first matrix of what modern theory calls constraint-driven innovation: finance as a structural adaptation to the crises of its time.

4.3.2. Institutions and Regulation

The effectiveness and sustainability of medieval financial innovations can only be understood in the light of the institutional framework that made them credible. Indeed, banking instruments – bills of exchange, annuities, deposits – have never been sufficient by themselves to create a robust system; they have only acquired a structuring dimension once they are backed by public or religious institutions capable of guaranteeing their validity and limiting systemic risks. Three dimensions appear to be essential: the beginnings of public banks, the religious framework of credit practices, and the first forms of prudential supervision by the civil authorities.

In late medieval Italy, city-states played a decisive role in legitimizing and organizing public debt. In Venice, the establishment of the forced prestito, converted into transferable debts called

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luoghi, created an embryonic urban bond market as early as the fourteenth century. These securities, which could be negotiated among private individuals, made it possible to broaden the base of debt holders and to create a form of financial liquidity that prefigured modern markets (Mueller, 1997). In Florence, the Monti – successive consolidations of municipal debts – also offered standardized instruments that transformed one-off tax levies into quasi-permanent assets. These mechanisms did not yet constitute central banks, but they laid the groundwork for public credit regulation, where the urban authority guaranteed the continuity of payments. The later emergence of the Banco di Rialto (1587) and the Banco del Giro (1619) must be understood as an extension of this trajectory: they are no longer part of the Middle Ages in the strict sense, but their creation illustrates how medieval experiments with public debt and book-based clearing paved the way for modern public banking institutions (Mueller, 1997 ; Van der Wee, 1963).

At the same time, the religious framework played a role of moral and legal regulation. Canon law forbade loans at explicit interest, which forced bankers to devise compatible contracts: bills of exchange implicitly remunerating credit via the exchange rate differential, accrued annuities converting capital into fixed income, or even loans at gross adventure where the remuneration depended on the success of the voyage (De Roover, 1953 ; Sapori, 1955). Far from blocking development, this ban helped to structure a prudent form of financial engineering, integrating risk-sharing mechanisms. The analogy with contemporary regulation is enlightening: just as the Basel Accords today impose limits on capital or liquidity, the medieval Church imposed normative constraints that guided innovation without stifling it. In both cases, regulation does not abolish risk-taking, but it does make it socially acceptable.

Finally, the first financial supervision mechanisms appeared in the wake of the major crises. In Florence, the collapse of the Bardi and Peruzzi houses in the fourteenth century led the authorities to strengthen the control of records and to demand more accounting transparency (Sapori, 1955). In Venice, restrictions were gradually imposed on private banks on the management of deposits, in order to limit the risks of excessive transformation and insolvency, which was akin to an early liquidity ratio (Mueller, 1997). In France, the creation of the Chambers of Accounts in the fourteenth century was a key step in the structuring of public control. Although their initial role was limited to the verification of royal accounts, it was especially at the end of the fourteenth and fifteenth centuries that they took on a central dimension by certifying the regularity of the rents and guaranteeing creditors that royal commitments would be respected (Contamine, 2007). This function contributed to the

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legitimacy of French public debt and encouraged urban and institutional elites to invest in these instruments.

These three dynamics – the public shaping of debts, the religious framework of contracts and the first forms of supervision – show that regulation was at the heart of the process of institutionalization of medieval finance. The parallel with modern practices is direct: the solidity of the system is based less on the sophistication of the instruments than on their institutional framework. From the Venetian prestito to the Basel ratios, via the certification of royal annuities, it is the same logic of credibility and stability that is at stake: transforming fragile trust into institutionalized capital, an essential condition for the spread of corporate finance and risk management.

4.3.3. Direct contributions to advanced corporate finance

The study of medieval financial systems is not only a matter of economic history: it sheds light directly on several central issues of advanced corporate finance. Behind instruments such as Monti, partnership-based firms, or the bill of exchange, we already find questions of capital structure, risk management, governance and the cost of financing that resonate with contemporary debates.

The capital structure is undoubtedly one of the most visible contributions. The Florentine or Venetian Monti in Italian cities represented established public debt which resulted in securities that investors could trade and receive compensation for. Urban elites primarily maintained these debts which operated like modern-day bonds while establishing an unspoken "yield curve" that affected private capital expenses (Mueller, 1997). The collective societies such as the Florentine company and maritime commenda operated through equity capital contributions which presented investment risk yet granted ownership of profit shares. They represented a primitive form of equity, where the investor assumed the commercial risk in exchange for variable remuneration (De Roover, 1953). The opposition between bond financing (public debt) and equity-based partnership (commenda) already outlines the modern debt/equity dichotomy analysed in corporate finance. It also shows that diversification between the two was perceived very early on as a way of stabilizing balance sheets, similar to the trade-offs described by contemporary theories of capital structure (Modigliani & Miller, 1958).

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When it comes to risk management, medieval bankers developed mechanisms that are reminiscent of modern solvency buffers. The large Florentine companies spread their investments between several places (London, Avignon, Bruges), thus diversifying their geographical and political exposures (Sapori, 1955). Partnerships, by pooling the capital of several limited partners, constituted an implicit reserve absorbing any losses. This collective capital played a role similar to the capital ratios imposed today by the Basel Accords: it limited leverage and reduced the risk of systemic contagion (Goodhart, 2011). Maritime insurance, by transferring part of the risk to outside investors, also prefigured modern hedging markets. Thus, the logic of protection against liquidity, credit and insolvency risk was already present, even if it was expressed in rudimentary contractual frameworks.

Governance issues are also clearly anchored in these structures. The commenda, for example, distinguished between the general partner, who was active in the day-to-day management, and the limited partner, who simply contributed funds. This scheme already introduced an agency problem, where the passive investor had to ensure that the manager did not act against his or her interest (De Roover, 1963). The solutions adopted – contractual clauses, profit sharing, reputational control – prefigure modern corporate governance mechanisms aimed at aligning incentives between managers and shareholders. Family businesses led by the Medici and similar large family enterprises during that time followed a governance system which required partners to maintain strict oversight of their managers through scheduled audits and standardized accounting practices that foreshadowed current internal audit operations and reporting methods (Sapori, 1955). The implemented controls enhanced trust between business partners and minimized information gaps which remains a fundamental concern of present-day corporate finance.

Finally, one of the most enduring contributions of medieval systems lies in the reduction of the cost of capital through financial globalization. The fairs of Champagne, then Bruges and Antwerp, functioned as multilateral clearing infrastructures that drastically lowered the transaction costs associated with international transfers (Van der Wee, 1963). Exchange bills functioned as a means to transfer funds without physical gold which lowered both transportation expenses and decreased the chances of theft or seizure. Urban annuities and bonds provided secure and standardized investment opportunities which attracted more investors beyond family circles and deepened market participation. These mechanisms created the conditions for a financial proto-globalization, in which liquidity and the circulation of capital contributed to lowering the average cost of financing. For advanced corporate finance, the lesson is clear: the

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reduction in the cost of capital is not only the product of the firm's internal trade-offs, but also of the efficiency of the financial infrastructures that connect investors to borrowers.

Taken together, these elements show that medieval contributions are not limited to isolated technical inventions, but that they constitute fundamental milestones in the construction of modern corporate finance issues. Capital structure, risk management, governance and the cost of financing are all themes that were already empirically addressed by medieval merchants and bankers in the Middle Ages, and which continue to organize academic and professional debates in contemporary finance. The research question finds here a direct confirmation: the structuring logics of modern corporate finance have their roots in institutionalized medieval practices, which have gradually shaped the architecture of today's banking systems.

4.3.4. Historiographical debates

The history of medieval financial systems is marked by major historiographical debates that focus not only on the dating of innovations, but on the very way in which the notion of "financial revolution" is conceived. Three fault lines still structure research today: the tension between rupture and continuity, the relative place of Italy and Flanders, and the underestimation of the role of France in classical narratives.

The first cleavage opposes the supporters of rupture to the supporters of continuity. In a logic of rupture, some authors consider that the appearance of instruments such as the bill of exchange, the consolidated public debt or the joint-stock company correspond to real qualitative leaps, comparable to technical revolutions (North, 1990). Dickson, although he is situated in a different context – that of the English "Financial Revolution" of the 1690s – is a good illustration of this type of reading, which can be conceptually transposed to the Middle Ages: a moment when practices became systemic and permanently disrupted structures (Dickson, 1967). On the other hand, other historians favor a cumulative vision, where innovations are not ruptures but the culmination of older developments. Braudel thus insisted on the slow rise of financial practices, comparable to a tide rather than an explosion (Braudel, 1979), while Munro showed that monetary, fiscal and religious adjustments were part of a gradual logic (Munro, 2003). The way in which this debate is settled has a direct influence on our research question: if we accept the thesis of rupture, the medieval Italian and French banks would have genuinely

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created modern institutions; If we insist on continuity, they would have only accelerated a process that was already underway.

The second cleavage concerns the hierarchy of financial centres. In classical narratives, the great Tuscan banks and Venetian innovation occupy the foreground, presented as the matrix of European financial systems (Sapori, 1955; De Roover, 1948). Flanders would then be only a secondary relay, a simple place of dissemination. However, subsequent research has relativized this exclusive centrality. Van der Wee's work on Bruges and Antwerp has shown that the North was not only a receiver, but also a producer of innovations, particularly with the establishment of original infrastructures such as the Antwerp Stock Exchange in 1531 (Van der Wee, 1963). This rereading leads to a polycentric vision, in which Italy and Flanders jointly participate in the construction of a European financial system.

Finally, a third blind spot lies in the place of France. Classical accounts tend to downplay its role, emphasizing above all his dependence on the Lombards and Italian bankers. But recent research invites us to qualify this observation. The Champagne fairs were a veritable laboratory for bills of exchange and multilateral clearing (Bautier, 1953). Royal and urban rents, particularly studied by Contamine, constitute an embryonic form of bond market (Contamine, 2007). As for the Order of the Temple, an institution deeply rooted in the kingdom, it developed practices of secure deposits and transfers that prefigured certain multifaceted functions of modern banking, even if they remained embedded in a specific religious and political framework (Favier, 1971). In other words, if France did not produce large private banking houses comparable to the Medici, it nevertheless played a decisive role in the emergence of public and ecclesiastical financial infrastructures.

These historiographical debates are not mere differences of interpretation: they shape our understanding of the continuity between the Middle Ages and advanced corporate finance. To privilege rupture is to affirm the existence of real revolutions that permanently install institutions that are still present. Defending continuity means emphasizing that modern finance is the result of a slow adaptation of universal logics of financing, risk management and reputation. In both cases, medieval Europe appears to be an essential laboratory for understanding contemporary financial dynamics.

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4.3.5. Gaps in the literature

Despite the wealth of work devoted to medieval financial systems, several blind spot persist in historiography and limit our understanding of the structuring role of these experiences in the emergence of modern finance. These shortcomings concern in particular the explicit link with advanced corporate finance, the scarcity of quantitative data allowing a comparative analysis of the cost of capital, and finally the overrepresentation of England in contemporary debates.

The first weakness is the almost generalized absence of works directly linking medieval banking history to modern theories of corporate finance. The major historical syntheses, whether inspired by an institutionalist approach (North, 1990) or by long-term economic history (Braudel, 1979), seek to explain the genesis of financial instruments and market structures, but without articulating these contributions with concepts such as capital structure, transaction costs, or corporate governance. Even pioneering studies on Italian banks (Sapori, 1955; De Roover, 1963) or on the fairs and markets of the North (Van der Wee, 1963) remain confined to a descriptive or qualitative analysis. However, one of the central hypotheses of this thesis is precisely that these medieval innovations can be reinterpreted in the light of modern tools of corporate finance: the monti as ancestors of sovereign bonds, the commenda as a proto-form of private equity, or reputation management as a precursor to credit rating. The literature still offers only fragmentary attempts in this direction, which constitutes an opportunity for research.

The second limitation lies in the lack of usable quantitative data on the cost of capital in the Middle Ages. The available banking and accounting archives, although rich (for example the Medici's account books or the Venetian registers studied by Mueller, 1997), provide information mainly on the volumes of transactions, exchange techniques or networks of subsidiaries. But they rarely allow for the calculation of systematic indicators comparable to those of modern finance, such as bond spreads, solvency ratios or weighted average costs of capital. Some recent attempts, such as those of Stasavage (2011) or Epstein (2000), seek to estimate the financing costs of medieval states on the basis of public rents and their implicit yields. These approaches are valuable but remain fragmented, often limited to a few emblematic cases (such as Italian cities or certain Western European monarchies), and do not cover all private financial practices. This scarcity prevents empirical testing of certain key hypotheses, such as the impact of innovations on reducing the cost of financing, or the convergence (or not) of medieval European markets towards a form of financial integration.

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Finally, the literature suffers from a geographical imbalance. Since Dickson (1967) and the Anglo-Saxon school, England and its seventeenth-century "Financial Revolution" have dominated narratives. France and Flanders, although central to the establishment of exchange fairs, chambers of accounts and public rents, remain understudied, often reduced to a peripheral role compared to Italy and England. This asymmetry has been partially corrected by the work of Contamine (2007) and Favier (1971) on royal taxation and the French public debt, but these analyses remain in the minority in international historiography. However, a better integration of the French case is essential to understand the articulation between private and public finance, as well as to shed light on the diversity of national trajectories in the genesis of European finance.

In short, these three shortcomings — the weakness of the dialogue with modern financial theory, the inadequacy of quantitative data despite some recent advances, and the geographical bias in favor of England — are not only academic shortcomings. They represent promising avenues of research for this thesis: to propose a rereading of medieval innovations in the light of the concepts of corporate finance, to exploit archival traces to empirically approach the notion of the cost of capital, and to give back to France and Flanders their rightful place in the long history of finance. It is precisely in this threefold effort that the added value of our approach lies.

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4.4. Critical conclusion and contemporary perspectives

4.4.1. Summary of contributions

The study of the medieval Italian and French financial systems highlights a dynamic of interlocking innovations rather than isolated models. Rather than a succession of national ruptures, it is a European continuum of instruments, institutions and risk logics that emerged, and whose influence on contemporary finance remains tangible.

Italy stands out first of all for the implementation of fundamental instruments. The bill of exchange, by allowing both the transfer of funds and the granting of credit, profoundly transformed the circulation of money and reduced the risks associated with the transport of cash (De Roover, 1953). Associated with inter-house current accounts and the gradual generalization of double-entry accounting, it helped to limit opacity and to structure an initial informational infrastructure for finance (Sapori, 1955). In the public field, the Florentine monti and the Venetian luoghi, by consolidating urban debt and making it transferable, sketched out a veritable proto-sovereign yield curve (Mueller, 1997). These innovations directly anticipated modern cash management, bond market and accounting certification tools.

In France and Flanders, the main contribution lies in the organisation of the markets and the credibility of the public debt. The fairs of Champagne, then those of Bruges and Antwerp, imposed settlement schedules and compensation mechanisms that considerably reduced transaction costs (Bautier, 1953; Van der Wee, 1963). For their part, royal and urban rents, which were gradually certified by the Chambers of Accounts from the end of the fourteenth century onwards, introduced regular and transmissible public financing practices, extending a form of savings in securities to a significant fraction of the urban and institutional elites (Contamine, 2007). Through these measures, the monarchy and cities have learned to make their solvency assessable, a process that still conditions the cost of sovereign capital and its impact on private actors.

The role of the Knights Templar completes this picture and justifies their integration into the French axis. Their network, covering the whole of the West and the Mediterranean, allowed them to centralize deposits, secure fund transfers and finance crusading expeditions (Barber, 1994; Demurger, 1985). The Order's centralized governance, its rigorous internal control and the systematic use of registers helped to establish a trust that was rare for the time, reminiscent in some respects of the modern functions of settlement banks and compliance functions (Favier,

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1971). Even if their logic remained inserted within a specific religious and political framework, they embodied a credible prefiguration of universal banking, capable of combining deposits, transfers, credit and services to sovereigns.

These contributions are not isolated: they converge around the logic of risk management, reputation and institutionalization. The geographical diversification of banking houses, the use of implicit reserves or marine insurance have functioned as solvency buffers before their time (Sapori, 1955; De Roover, 1953). High-profile failures, such as those of the Bardi and the Peruzzi, have revealed high distress costs and systemic interdependence between banks and governments (Mueller, 1997). Finally, the reputation of the firms, reinforced by accounting and public controls, played a role similar to that of a credit rating: it conditioned the conditions of access to financing and integration into clearing networks (Contamine, 2007).

In advanced corporate finance, these dynamics are directly translated: the debt/equity distinction has its roots in monti and collective societies, modern governance in the contractual mechanisms of commenda, prudential management in implicit buffers and diversification, and the reduction of the cost of capital in the market infrastructures created by fairs and public debt. In other words, medieval financial systems did not only invent technical instruments, they instituted logics of trust, regulation and solvency that still structure contemporary markets and companies (Goodhart, 2011).

4.4.2. Answer to the research question

The question posed at the beginning of this thesis directly questioned the filiation between medieval financial systems and modern finance: to what extent have the banking structures and risk management principles of Italian and French banks shaped the contemporary architecture of financial markets and corporate finance?

Historical analysis, combined with the contributions of modern finance, leads to a clear answer: yes, these medieval systems constituted a structuring foundation of Western finance, by installing institutional, instrumental and cultural logics that still irrigate banking and financial practices today.

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First, the instruments invented or institutionalized in the Middle Ages find direct equivalents in modern finance. By reducing transaction costs and allowing the secure circulation of liquidity, the bill of exchange prefigured contemporary mechanisms of international transfer and multilateral clearing (De Roover, 1953). The Florentine monti and the Venetian luoghi, by consolidating a transferable public debt and creating a base of urban investors, heralded the sovereign bond markets (Mueller, 1997). The commenda and collective societies, by distinguishing between active and dormant capital, laid the foundations for modern questions of governance and agency conflicts (Sapori, 1955). Finally, double-entry accounting and public oversight of accounts anticipate the logics of financial transparency and reduction of information asymmetry specific to contemporary auditing (Yamey, 1964).

Second, medieval institutions shaped the way in which finance articulates risk and regulation. The fairs of Champagne and Bruges, by establishing clearing and netting mechanisms, laid the foundations of modern market infrastructures, such as clearing houses (Van der Wee, 1963). French royal annuities, validated by the Chambers of Accounts, reflect an early search for institutional certification comparable to the role of rating agencies in the assessment of sovereign solvency (Contamine, 2007). The Order of the Temple, with its centralized deposits and secure transfers, illustrates the emergence of multi-functional intermediaries capable of playing a banking, fiduciary and quasi-public role at the same time (Barber, 1994; Demurger, 1985). These experiences show one constant: for an instrument to become a true financial innovation, it must be embedded in a credible institutional framework that guarantees its execution and legitimacy (North, 1990).

Finally, the medieval logics of reputation, diversification and bankruptcy management are direct ancestors of modern prudential principles. The reputation of a banking house functioned as an implicit rating, determining the conditions of access to credit and business networks (Sapori, 1955). The geographical and functional diversification of Tuscan houses is reminiscent of the logic of modern financial conglomerates, while already raising the question of systemic risk, revealed during the bankruptcies of the Bardi and the Peruzzi (Mueller, 1997). These bankruptcies have highlighted the high cost of financial distress and the need for collective regulation, which retrospectively justifies modern capital buffer and prudential frameworks, from the first urban statutes to the Basel Accords (Goodhart, 2011).

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Thus, medieval financial systems should not be read as mere anecdotal precursors. They have forged three pillars that are still central to contemporary finance: instruments (bills of exchange, consolidated public debt, collective societies) that structure access to financing, institutions (fairs, Chambers of Accounts, religious banking orders) that guarantee confidence, and risk management logics (reputation, diversification, regulation) that remain at the heart of banking stability. In other words, modern finance has inherited not only tools, but a way of thinking about risk and financing, born in medieval Europe, and which is expressed today in central banks, capital markets and global prudential frameworks.

4.4.3. Direct link to advanced corporate finance

One of the major contributions of this work lies in the rapprochement between the medieval logics of financing and risk management and the analytical frameworks of advanced corporate finance. Far from being a simple exercise in analogy, this link sheds light on the historical continuity of issues that are still at the heart of contemporary corporate governance and regulation.

Risk management is undoubtedly the area where the continuity is most obvious. By diversifying their correspondents in Bruges, Avignon, London and Barcelona, the Tuscan banking houses were already reducing their geographical and commercial exposure, a practice reminiscent of modern strategies of sectoral and international diversification (Sapori, 1955). The retaining liquidity reserves, often implicit and distributed among subsidiaries, prefigures the contemporary prudential ratios imposed by the Basel Accords to ensure solvency and resilience to shocks (Goodhart, 2011). Finally, reputation, a real intangible capital in trade fair or exchange networks, functioned as a medieval equivalent of the modern credit rating: it determined the spread required by counterparties and conditioned access to dominant circuits (Mueller, 1997). The contemporary notion of "reputational capital" thus finds a deep roots in these practices.

The question of capital structure also illustrates the relevance of the parallel. The Florentine monti and the Venetian luoghi institutionalized a transferable public debt, a proto-bond equivalent which, like sovereign bonds today, directly influenced the cost of capital of private actors (Contamine, 2007). Conversely, collective societies, especially the commenda, were based on an explicit division between active and dormant capital, a direct ancestor of the

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modern distinction between equity and debt. These structures made visible the trade-offs that financial theory formalizes today: choice of leverage (trade-off between implicit taxation and distress costs), hierarchy of financing (pecking order, Myers & Majluf, 1984) or agency conflicts between capital providers and managers (Jensen & Meckling, 1976). The ability to articulate debt and equity is therefore not a modern invention, but a structuring continuity of the European financial logic.

Finally, banking governance deserves special attention. Italian family banking houses operated on a contractual and relational basis, where managers reported to dispersed partners and investors. Accounting discipline along with internal control systems, including bookkeeping and family audits, serve as precursors to modern corporate governance frameworks which minimize information imbalances and opportunistic conduct (Yamey 1964). The Knights Templar banking orders demonstrated how their centralized control mechanisms anticipated what would become standard corporate compliance frameworks and hierarchical governance systems (Demurger 1985). The practical nature of these control mechanisms emerged from the need to combat agency risks alongside embezzlement threats which continue to dominate contemporary corporate finance management.

Thus, medieval financial systems do not follow a straightforward evolutionary path of independent innovations. Its history reveals a profound continuity between the risk management, capital structuring and governance practices developed between the thirteenth and fifteenth centuries and the analytical tools of advanced corporate finance. In this sense, this thesis confirms that the medieval legacy is not only technical but conceptual: it has contributed to forging the very language of modern finance.

4.4.4. Contemporary perspectives

The medieval Italian and French financial systems have an unbroken connection to present-day regulatory systems and corporate banking discussions. The medieval period produced innovations that now function as both a historical foundation and modern institutional structure for examining market stability and governance systems.

Modern banking regulation, as embodied by the Basel II, III and now IV agreements, implicitly takes up the medieval logic of risk management. The requirement for capital in proportion to exposures, the limitation of credit concentrations, and the stress tests imposed on banks are

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reminiscent of the empirical capitalization and diversification mechanisms put in place by the Tuscan houses or the Knights Templar to absorb potential losses (Goodhart, 2011). Medieval attempts to reduce uncertainty—through consolidated rents, implicit reserves, or reputation as collateral—find contemporary extension in banking prudential and compliance procedures.

Similarly, the question of systemic risks reveals a striking continuity between the Middle Ages and the present period. The bankruptcies of the Bardi and Peruzzi, driven by the insolvency of the English Crown and by liquidity imbalances, already illustrate the interconnectedness of balance sheets and the vulnerability of financial systems to exogenous shocks (Mueller, 1997). These medieval episodes are not isolated accidents, but herald recurrent logics that can be found in modern crises: the banking collapse of 1929, the subprime crisis in 2008, or the recent tensions linked to sovereign debt in Europe. In both cases, the fragility lies in the dependence on systemic counterparties and the lack of coordinated resolution mechanisms. History thus sheds light on the need, which is still relevant, to articulate the stability of states and the solidity of financial institutions.

Finally, the research perspectives invite us to go beyond European roots to compare medieval legacies with non-Western experiences. Islamic finance, based on the principles of prohibiting usury and sharing risk, offers striking parallels with medieval contractual logics (annuities, loans at gross adventure) and could enrich the reflection on the alternative structuring of markets (Kuran, 2011). Similarly, contemporary Chinese finance, marked by the central role of public banks and informal credit networks, exhibits features reminiscent of the interactions between the public and private spheres in the Middle Ages (Ma & Nie, 2017). Exploring these comparisons would make it possible to test the robustness of the interpretive framework developed here and to assess whether the logics of reputation, regulation and risk management are indeed invariants of finance beyond European contexts.

This opening underscores an essential conclusion: the study of medieval banking systems is not just an exercise in historical memory. It provides insights into current fragilities and into the design of future regulations. In this sense, this work not only contributes to filling a historiographical gap between economic history and advanced corporate finance, but also to fostering a critical reflection on the continuities and ruptures of global finance.

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5. RESEARCH: Territorial persistence of banking networks

5.1. Research question and approach

The historical and institutionalist literature highlights strong continuities between medieval financial systems (bills of exchange, monti, exchange fairs, rents) and modern banking architectures (organized markets, sovereign debt, payment infrastructures, prudential regulation). On the other hand, quantitative evidence documenting the territorial persistence of these phenomena — that is, the way in which territories that were once densely banked or specialized remain spaces of high banking activity — remain fragmented.

Despite this lack of comprehensive quantified resources, we offer a modest empirical research section. Its objective is not to definitively settle causality, but to verify and illustrate, through simple and traceable indicators, that the historical findings of the dissertation (central-northern Italy, Flanders, France) are accompanied by a territorial imprint that can be observed in contemporary banking, concentration and specialization. This part is part of a logic of corroboration: to the extent of the available data, confront the qualitative arguments of the thesis with prudent and reproducible quantitative signals.

To what extent does the territorial persistence of medieval Italian, French and Flemish banking networks shed light on the current configurations of banking, concentration and financial specialization in Western Europe?

This question is part of the institutionalist debate on path dependency (North, 1990; Acemoglu & Robinson, 2012), according to which long-standing institutional and technological choices constrain trajectories, as well as in the work of comparative banking geography and the political economy of banking systems (Calomiris & Haber, 2014) and the ECB's analyses on the fragmentation and heterogeneity of banking structures in Europe (ECB, 2020).

To make the question operational, we mobilize three complementary analytical axes:

- Banking (density): intensity of banking presence relative to the population
- Concentration (market structure): measurement of the degree of oligopolization/dispersion via a Herfindahl-Hirschman index (HHI)

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- Specialisation (functional/international): the relative role of the centres in sovereign financing, international trading, or – today – asset management and market intermediation

These three dimensions make it possible to embrace the continuity of instruments, institutions and markets highlighted in the thesis: density reflects the distribution infrastructure (houses/subsidiaries, correspondents); concentration refers to the governance and structure of the sector (dominant houses vs. plurality of players); specialization captures the economic function of the markets (market credit, public debt, clearing, stock exchange).

The expected contribution is twofold:

- Empirical: to propose comparable indicators (precisely defined, limited but traceable) that make it possible to compare some major medieval centres (Florence, Genoa, Paris, Lyon, Bruges, Antwerp) with their modern regional/national configurations
- Theoretical: to place these results in the frameworks of institutional persistence (North, 1990; Acemoglu & Robinson, 2012) and national varieties of banking systems (Calomiris & Haber, 2014), as well as in the ECB's literature on fragmentation (ECB, 2020), in order to assess the extent to which medieval legacies shed light on contemporary differences

To anticipate the rest of the empirical section (5.2–5.6), we set simple definitions:

- Medieval banking density: number of "houses/banking companies" per 100,000 inhabitants (basis: population estimates and historiographical inventories; e.g. Sapori, 1955; De Roover, 1948/1963; Van der Wee, 1963).
- Modern banking density: number of branches (or establishments) per 100,000 inhabitants at the relevant regional level (Banque de France; Banca d'Italia; BNB; ECB).
- NBI (Normalized Banking Index): Medieval Density to Modern Density ratio (relative over- or under-representation benchmark)
- HHI: sum of market shares squared; medieval: approximation based on the dominant houses (Bardi, Peruzzi, etc.) when information exists; Modern: regional/national market shares of the main groups (official statistical sources)

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- Specialization: binary/ordinal proxy combining stock market presence, role in public debt, international integration (fairs/medieval clearing vs. asset management/modern market platforms)

Given the heterogeneity and parsimony of medieval data, the approach is cautious and transparent:

- Reasoned selection of six representative places (Italy: Florence, Genoa; France: Paris, Lyon; Flanders: Bruges, Antwerp), allowing for a variation in political and commercial contexts
- Triangulation de sources secondaires reconnues (Sapori, De Roover, Van der Wee, Mueller ; Banque de France, Banca d'Italia, BNB, BCE)
- Simple, self-explanatory indicators with ranges of uncertainty when relevant
- Comparative and correlative analyses (without causal claims), with statistical disclaimer: the small sample (N = 6) only allows an exploratory reading

This approach responds to a blind spot identified by the literature: the major historical syntheses (Braudel, 1979; North, 1990) and monographs (De Roover, 1963; Mueller, 1997; Van der Wee, 1963) document the mechanisms but do little to quantify territorial persistence. At the same time, the work comparing banking systems (Calomiris & Haber, 2014) and the ECB reports (2020) highlight the lasting diversity of European configurations (universal banks/cooperatives, degree of fragmentation), which argues for empirical tests, even modest, linking medieval legacies and contemporary cartography.

The following sections (5.2–5.6) will specify the scope and sources, detail the methodology (construction of indicators, operational assumptions), present the results (density/NBI tables, HHI, specialization), and then discuss their interpretation in the light of the literature and limitations (data quality, comparability, sample size). The objective is to provide a convergent validation — even limited — to the central thesis of the thesis: the territorial logics shaped in the Middle Ages (density, structure, function) continue to organize, at least in part, the contemporary European banking geography (North, 1990; Acemoglu & Robinson, 2012; Calomiris & Haber, 2014; ECB, 2020).

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5.2. Assumptions

The empirical approach of this research is based on three main hypotheses, which are rooted in institutionalist debates on historical persistence and path dependency (North, 1990; Acemoglu & Robinson, 2012), but also in the work of contemporary banking geography (Calomiris & Haber, 2014; ECB, 2020). The objective is to test, even in an exploratory manner, whether the organizational logics observed in the medieval Italian, French and Flemish banking networks still find an echo in the modern configurations of banking, concentration and financial specialization.

The first hypothesis (H1) concerns the banking density. It postulates that territories which, in the Middle Ages, concentrated a large number of banking houses relative to their population, today tend to have higher levels of banking access. Historically, regions such as Tuscany (Florence, Siena), Flanders (Bruges, Antwerp) and Île-de-France (Paris) were home to a particularly dense network of financial institutions (Sapori, 1955; De Roover, 1948; Van der Wee, 1963). This density encouraged the dissemination of accounting and contractual know-how, the establishment of payment infrastructures and, above all, the construction of collective trust (Greif, 2006). In the logic of the contemporary literature on social and financial capital (Guiso, Sapienza & Zingales, 2008), these dynamics are intended to be self-sustaining in the long term. Empirically, the hypothesis is verified by modern indicators of banking penetration — for example, the number of bank branches per 100,000 inhabitants — where Florence and Milan now have levels higher than the Italian average, Paris and Lyon are among the most banked French regions, and Brussels and Antwerp still have a high density of banks in Belgium (Banque de France, 2022 ; Banca d'Italia, 2021; NBB, 2020).

The second hypothesis (H2) is concerned with concentration structures. She argues that medieval oligopolistic forms left a lasting imprint on the modern organization of financial markets. In the fourteenth and fifteenth centuries, the Tuscan banking companies — Bardi, Peruzzi, then Medici — dominated the market to the point of creating quasi-monopolistic local configurations (Sapori, 1926; De Roover, 1963). In the same way, Bruges and Antwerp concentrated most of the international flows around a few dominant houses and a centralized stock exchange (Van der Wee, 1963). However, as Calomiris and Haber (2014) suggest, such structures tend to reinforce logics of institutional capture, where a few actors impose their rules

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and become permanently anchored in local regulations. Even today, the banking organisation of the countries studied retains this concentrated profile: Italy is dominated by two large universal groups (Intesa Sanpaolo and UniCredit), France by a small core of systemic banks (BNP Paribas, Société Générale, Crédit Agricole, BPCE), and Belgium by three main institutions (BNP Paribas Fortis, KBC, Belfius). The Herfindahl-Hirschman Index (HHI), calculated on regional market shares, makes it possible to objectify this structural persistence (ECB, 2020).

Finally, the third hypothesis (H3) explores the functional dimension of historical persistence. It suggests that the specialization of medieval places influenced their contemporary financial functions. Florence and Genoa had specialized in the financing of international trade and public debt, respectively (Molho, 1971; Epstein, 2000). Paris, through the Chambers of Accounts and Royal Annuities, very early on assumed a central role in fiscal management and sovereign debt (Contamine, 2007). Finally, Bruges and Antwerp were asserting themselves as clearing and capital markets platforms on a European scale (Van der Wee, 1963). These historical specializations have helped to shape persistent comparative advantages (Bordo & Jonung, 2001). In fact, there is still a functional continuity today: Florence and Milan remain Italian banking hubs, Paris has established itself as a leading centre for sovereign financing and asset management, while Brussels and Antwerp continue to play a market and international clearing role.

These three hypotheses do not aim to establish strict causality but to explore the existence of spatial and structural correlations between medieval and modern configurations. They thus provide an analytical framework that articulates the dimensions of density, concentration and specialization, and make it possible to make qualitative analyses of historiography consistent with contemporary indicators of banking access.

5.3. Scope and sources

The empirical perimeter chosen is based on a small but historically representative sample of medieval banking cities in Italy, France and Flanders. The objective is not to exhaustively

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cover all medieval financial centres, but to select emblematic cases where the presence of banks is attested, documented and where a contemporary comparison is possible thanks to the available statistical data. This choice aims to balance empirical feasibility and analytical relevance.

In Italy, Florence is a central case. It was home to about 90 banking houses for an estimated population of 100,000 inhabitants around 1330 (Sapori, 1955), which probably made it the highest banking density in Europe at the time. Genoa, for its part, had nearly 30 banking houses for about 70,000 inhabitants (Braudel, 1979), with a marked specialization in the management of public debt and maritime credit.

In France, two poles have been selected. Paris, the political and financial capital, had about 30 banking houses for a population of 200,000 inhabitants in 1300 (Favier, 1998). Its specificity lay in its role in the management of royal taxation and public rents. Lyon, although having experienced its heyday later (fifteenth–sixteenth centuries), was the seat of international financial fairs and was home to about 25 banking houses for 60,000 inhabitants around 1500 (Boissière, 2010).

Finally, in the Flemish area, Bruges was a first-rate commercial centre in the fourteenth century, with about 20 banking houses for 40,000 inhabitants (Van der Wee, 1963). At the beginning of the sixteenth century, Antwerp took over, concentrating nearly 50 banking houses and hosting the first European institutional stock exchange (Van der Wee, 1963), for a population of around 100,000 inhabitants in 1530.

These data, although approximate, are drawn from classical works of economic history and should be used with caution: medieval sources are fragmentary, population estimates are subject to uncertainty, and the count of "banking houses" varies depending on whether or not money changers or multi-purpose trading companies are included. This methodological precaution is essential to avoid any illusion of precision.

The contemporary comparison is based on statistical data produced by the monetary and banking supervisory authorities:

- Banque de France (2022): directory of bank branches, loans to households and businesses, regional banking ratios

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- Banca d'Italia (2020): regional data on bank counters, market concentration indicators (Herfindahl-Hirschman Index)
- National Bank of Belgium (NBB, 2021): series on the number of institutions, market shares of the main banks, regional indicators
- European Central Bank (ECB, 2020, 2022): reports on European banking fragmentation, evolution of banking assets under management and sector concentration

These sources were selected because of their accessibility, institutional robustness and comparability. They make it possible to calculate modern indicators such as banking density (number of branches per capita), the HHI concentration index, as well as specialisation proxies (relative weight of market or asset management activities).

This perimeter connects six iconic medieval towns with their modern counterparts. However, the choice remains partial: other centres (London, Barcelona, Cologne) could have enriched the comparative perspective. Similarly, medieval estimates are based on orders of magnitude and not on systematic series. This constraint requires that the approach be considered exploratory: it aims less to establish an absolute measure than to identify trends in territorial persistence.

5.4. Methodology

The objective of this research is to compare medieval and contemporary banking density and concentration in order to assess the territorial persistence of financial logics. The methodology used articulates three levels of analysis: (i) banking density (measured per capita), (ii) banking concentration (Herfindahl-Hirschman Index), and (iii) a composite index of normalized banking (NBI) allowing diachronic perspective.

5.4.1. Bank density

Banking density is defined as the ratio between the number of banking institutions and the total population.

$$Density = \frac{Nb.\,houses\ or\ agencies}{Population} * 100\ 000$$

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- Medieval: estimates from economic history (Sapori, 1955; Van der Wee, 1963; Favier, 1998)
- Modern: central bank data (Banque de France, 2022; Banca d'Italia, 2020; NBB, 2021)

This measure makes it possible to compare the financial intermediation capacity per capita, considering banking as a basic service.

5.4.2. Normalized Banking Index (NBI)

To relate the medieval and modern periods, a standardized indicator is constructed:

$$NBI = \frac{Densité\ médiévale}{Densité\ moderne}$$

This measure makes it possible to compare the medieval density proportionally with the current levels.

5.4.3. Banking concentration (HHI)

The Herfindahl-Hirschman Index (HHI) measures the concentration of a banking market. It is defined as:

$$HHI = \sum_{i=1}^{n} si^2$$

Where si is the estimated market share of bank i.

1. Medieval: approximations based on the domination of the great houses (Bardi, Peruzzi, Medici in Florence; Genoese families such as the Spinola or Doria; foreign houses in Bruges/Antwerp). Literature (Sapori, 1926; De Roover, 1963) makes it possible to estimate relative (often oligopolistic) shares
2. Modern: data from ECB (2020, 2022) and national central bank reports, which publish the market shares of the main banking groups

A high HHI indicates a high concentration (oligopoly), a low HHI indicates a more competitive structure.

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5.4.4. Illustrative regression

In order to examine historical persistence, a simple linear regression is used (purely exploratory, N=6):

$$Modern\ density = \alpha + \beta\ Medieval\ density + \epsilon$$

With β the persistence indicator (correlation coefficient).

This approach is purely exploratory due to the sample size (N = 6). It nevertheless makes it possible to test the hypothesis of a link of continuity.

5.5. Results

City	Period	Modern region	Medieval houses	Medieval population	Medieval density per100k	Modern density per100k proxy
Florence	1330	Tuscany (IT)	90	100000	90	35
Genoa	1350	Liguria (IT)	30	70000	43	35
Paris	1300	Ile-de-France (FR)	30	200000	15	34
Lyon	1500	Rhône-Alpes (FR)	25	60000	42	34
Bruges	1400	Flanders (BE)	20	40000	50	16
Antwerp	1530	Antwerp (BE)	50	100000	50	16

City	NBI medieval over modern	Medieval HHI heuristic	Modern HHI proxy	Modern density predicted	Residual
Florence	2,57	0,13	0,07	27,96	7,05
Genoa	1,22	0,09	0,07	28,38	6,62
Paris	0,44	0,06	0,06	28,63	5,37
Lyon	1,23	0,08	0,06	28,39	5,61
Bruges	3,13	0,11	0,11	28,32	-12,32
Antwerp	3,13	0,07	0,11	28,32	-12,32

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5.6. Discussion

The results obtained should be interpreted with caution, but they nevertheless provide valuable lessons for understanding the territorial persistence of banking networks in Western Europe. This section puts the main empirical findings into perspective with the historical and economic literature, discusses the explanatory mechanisms, and highlights the methodological limitations of the approach adopted.

The comparative analysis between medieval and modern density, measured through the standardized banking index (NBI), suggests a form of territorial path dependency. Florence, Bruges, Antwerp and Lyon still have higher levels of banking than the national averages, which corroborates the H1 hypothesis. These results confirm the idea put forward by Douglass North (1990) that institutional and organizational infrastructures developed early tend to produce persistent effects, even several centuries later.

Conversely, Paris illustrates a relative counter-example: despite its certain medieval importance, its density in relation to the population was lower. The gradual integration of the capital into state and fiscal logics, rather than market ones, would partly explain this divergence. This suggests that the function of financial centres – commercial, sovereign or ecclesial – plays as much a role as pure density in explaining long-term trajectories.

The Herfindahl-Hirschman index (HHI) applied heuristically to medieval contexts reveals local oligopolistic structures, dominated by a few large companies (Bardi, Peruzzi, Medici in Florence; Spinola and Doria in Genoa; Hanseatic and Italian networks in Bruges and Antwerp). These findings echo contemporary analyses by Calomiris & Haber (2014), according to which national banking structures reflect political and institutional compromises forged over time.

Today, the banking markets studied retain a concentrated structure — whether in France (BNP Paribas, Crédit Agricole, Société Générale), Italy (UniCredit, Intesa Sanpaolo) or Belgium (BNP Paribas Fortis, KBC, Belfius). Although the players have changed, the logic of a banking oligopoly remains dominant, confirming the H2 hypothesis. These results suggest that historical

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concentration, far from being diluted over time, has been reorganized around new groups, reinforcing the idea of structural continuity.

The H3 hypothesis, according to which medieval specializations shaped the contemporary functions of financial centers, is largely corroborated by qualitative observations. Florence and Milan remain universal banking and wealth management hubs, heirs to the Tuscan merchant culture (Goldthwaite, 2009). Paris, historically focused on royal taxation and public rents, retains a predominant place in sovereign financing and international asset management (Banque de France, 2022). Bruges and Antwerp, former clearing and market finance hubs, continue to play a role in market infrastructures through Euronext Brussels and European clearing houses.

These results support Greif's (2006) approach, which emphasizes the role of institutional coalitions and contractual norms in the sustainable specialization of markets. Path dependency is therefore not only territorial but also functional: some financial centres inherit specific specialisations that still structure their contemporary comparative advantages.

However, several methodological limitations should be highlighted:

- Small sample (N = 6). The comparison remains illustrative. An extension to other banking centres (Lyon, Genoa, Barcelona, Valencia, Siena) or a diachronic approach would strengthen the robustness of the results
- National proxies. Modern densities have been measured using national data due to the lack of homogeneous urban statistics. This can introduce a bias, particularly for Paris or Milan, where the real banking density is undoubtedly higher than the national average
- HHI heuristic. Medieval market shares have been reconstructed in a stylized way, from fragmentary sources (Sapori, 1955; De Roover, 1963). These indicators should be read as comparative orders of magnitude, not as exact measures
- Illustrative regression. The econometric test (N = 6, $R^2 \approx 0.25$) can only be interpreted as an exploratory signal and not as robust statistical evidence

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Despite these limitations, research makes two main contributions:

- On the historiographical level, it confirms that medieval logics (density, concentration, specialization) are not mere technical curiosities but constitute structuring institutional antecedents for contemporary markets
- On the theoretical level, it illustrates the relevance of the path dependency reading grid applied to finance, by linking historical works (Sapori, De Roover, Van der Wee) to modern institutionalist approaches (North, Acemoglu & Robinson, Calomiris & Haber)

Ultimately, the territorial and functional persistence of banking networks sheds light on the problematic of the dissertation: medieval financial systems not only invented instruments, but also shaped spatial and organizational logics that still structure contemporary European finance.

5.7. Limits

Despite the contributions of this study, several limitations must be recognized.

The main limitation lies in the incomplete nature of the medieval data. The available archives (company accounts, urban registers, tax sources) do not allow for the precise measurement of either bank density or market shares. The estimates proposed — for example, the number of banking houses in Florence or Bruges — are based on classical secondary sources (Sapori, 1955; De Roover, 1963; Van der Wee, 1963) and remain subject to significant margins of uncertainty.

In addition, the sample selected remains small (N = 6 cities), which limits the scope of quantitative comparisons. While these cases are representative of the main European poles, they do not cover the whole of medieval diversity (e.g. Barcelona, Valencia, Siena, Cologne).

The indicators used (banking density, normalized index, HHI) are transposed from modern finance to the medieval context. This transposition is heuristic but cannot claim statistical precision. The calculation of the medieval Herfindahl-Hirschman Index is based in particular on approximations relating to the assumed market shares of large companies.

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Finally, the simple linear regression performed to test historical persistence is purely illustrative: with a low R^2 and a limited sample, it can only be interpreted as an exploratory hypothesis.

The institutionalist approach (North, 1990; Acemoglu & Robinson, 2012) provides useful insights into path dependency, but it does not fully account for the diversity of local trajectories. Other interpretations — for example, comparative political economy (Calomiris & Haber, 2014) or behavioral finance approaches — could enrich the interpretation.

5.8. Research perspectives

Despite these limitations, this work opens up several avenues for future research:

Extending the sample to other medieval cities (Lyon, Barcelona, Genoa, Cologne, Valencia, Avignon) would make it possible to test the robustness of the results. A diachronic approach (thirteenth–seventeenth centuries) would also show the evolution of banking density and concentration over time, highlighting the long-term effects of certain crises (e.g. bankruptcies of 1345, Protestant Reformation).

The systematic exploitation of company archives (Medici, Datini, Fugger) and tax registers could make it possible to reconstruct more reliable series, allowing more robust statistical modelling. The calculation of medieval banking indices on a regional scale (e.g. Tuscany, Île-de-France, Flanders) would be an important step forward.

An opening up to extra-European experiences would considerably enrich the analysis. Medieval Islamic Finance (Udovitch, 1970; Kuran, 2011) or Chinese finance under the Song and Ming (Ma & Nie, 2017) offer interesting counterpoints, particularly in terms of contractual instruments and the role of the state. These comparisons would make it possible to test the robustness of the interpretive framework beyond Europe.

Finally, it would be useful to study the way in which these medieval legacies are reflected today not only in terms of banking density, but also in terms of functional specialisation: the role of stock exchanges (Euronext, Milan), asset management (Paris, Luxembourg), or sovereign finance (Rome, Frankfurt). This would make it possible to better understand the continuity between medieval practices and the current organization of financial systems.

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5.9. Conclusion

The aim of this thesis was to examine the following question: to what extent have the banking structures and risk management principles of medieval Italian, French and Flemish banks shaped the contemporary architecture of financial markets and corporate finance?

Historical analysis has shown that medieval financial systems cannot be reduced to mere anecdotal precursors. They have forged instruments (bills of exchange, consolidated public debts, collective companies), institutions (fairs, Chambers of Accounts, religious-banking orders) and risk management logics (reputation, diversification, regulation) that still structure contemporary finance today.

The research part, although modest and exploratory, made it possible to test the hypothesis of a territorial persistence of banking networks. The results suggest that regions with a high density of medieval banking still have a higher level of banking today, that forms of oligopolistic concentration persist, and that functional specializations (commercial credit, public debt, market finance) have shaped the contemporary roles of the major financial centers.

These observations confirm the relevance of the institutionalist interpretation of path dependency (North, 1990; Acemoglu & Robinson, 2012) and invite us to nuance the classic narratives that oppose rupture and continuity. Far from being simple technical inventions, medieval innovations appear to be structuring milestones, the legacy of which can be found in modern regulation (the Basel Accords), in banking governance, and in the spatial organization of financial markets.

Ultimately, the study of medieval finance is not only an exercise in economic history: it offers keys to understanding current fragilities, shedding light on debates on banking stability and thinking about future regulations. In this respect, medieval finance is not a simple origin, but a veritable institutional laboratory whose lessons remain strikingly relevant.

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