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Late Medieval Administration and Bookkeeping in The Crown of Aragon: Torralba's Company

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Late Medieval Administration and Bookkeeping in The Crown of Aragon: Torralba's Company

Abstract

The attempt to rebuild the socioeconomic reality of the fifteenth-century Crown of Aragon has brought us to all the companies once founded and managed by Joan de Torralba. Linking two main commercial cities of that time — Zaragoza and Barcelona— with the forefront financial centres of those days - Italian cities, in particular, Venice, Pisa-Florence, and Genoa — set the company in a unique position. This paper studies two primary components of our business: corporate and financial management. This analysis intends to demonstrate the complexity of management in late medieval companies of the Crown of Aragon, alongside knowledge diffusion and the extent and significance of weaving networks. We have in mind to present how the administration was developing, giving the local colour and regional details, making much of the proper management and contacts through the Mediterranean, employing management and historical analysis. The results reveal that the companies in the Crown of Aragon benefited from their management approach, which was comprehensive and advanced, for that era. The position of merchant elites, with the example observed by Joan de Torralba as the executive, was prominent. Hence, the weight of the last centuries of the Middle Ages, considering the West Mediterranean area, was essential in the transition to build a modern-like economic space.

Keywords: management history, corporate administration, late medieval business, Crown of Aragon, Joan de Torralba, bookkeeping

Administració i comptabilitat baixmedieval a la Corona d'Aragó: la Companyia de Joan de Torralba

Resum

L'intent de reconstruir la realitat socioeconòmica de la Corona d'Aragó del segle XV ens ha portat a analitzar les empreses fundades i gestionades pel mercader Joan de Torralba. La vinculació de dues de les principals ciutats comercials del Quatre-cents i seus de la companyia -Saragossa i Barcelona- amb els centres financers d'avantguarda de l'època -ciutats italianes, en particular Venècia, Pisa-Florència i Gènova- va situar l'empresa en una posició única. Aquest article estudia dos components fonamentals de la nostra companyia, la gestió empresarial i la gestió financera, amb la finalitat de demostrar la complexitat de la gestió de les empreses baixmedievales de la Corona d'Aragó i, alhora, demostrar la difusió del coneixement i l'extensió i importància de les xarxes d'intercanvi. El nostre objectiu és presentar com es va desenvolupar l'administració de la companyia Torralba, considerant paràmetres locals i regionals, fent especial èmfasi en la gestió i els contactes a través de la Mediterrània i emprant l'anàlisi històrica i de gestió. Els resultats revelen que les empreses de la Corona d'Aragó, de les quals Torralba és un estudi de cas, es van beneficiar d'un enfocament de gestió integral i avançat, i que, per tant, la posició de les elits mercantils van tenir un lloc destacat en la conformació de l'espai mercantil mediterrani. D'això es conclou que el pes dels darrers segles de l'edat mitjana, considerant l'àrea de la Mediterrània Occidental, resultés essencial en la transició per construir un espai econòmic de tall modern.

Paraules clau: història de gestió, administració corporativa, negocis baixmedievales, Corona d'Aragó, Joan de Torralba, comptabilitat

Administración y contabilidad bajomedieval en la Corona de Aragón: la compañía de Joan de Torralba

Resumen

El intento de reconstruir la realidad socioeconómica de la Corona de Aragón del siglo XV nos ha llevado a analizar las empresas fundadas y gestionadas por el mercader Joan de Torralba. La vinculación de dos de las principales ciudades comerciales del Cuatrocientos y sedes de la compañía -Zaragoza y Barcelona- con los centros financieros de vanguardia de la época -ciudades italianas, en particular, Venecia, Pisa-Florenca y Génova- situó a la empresa en una posición única. Este artículo estudia dos componentes fundamentales de nuestra compañía, la gestión empresarial y la gestión financiera, con la finalidad de demostrar la complejidad de la gestión de las empresas bajomedievales de la Corona de Aragón y, al mismo tiempo, demostrar la difusión del conocimiento y la extensión e importancia de las redes de intercambio. Nuestro objetivo es presentar cómo se desarrolló la administración de la compañía Torralba, considerando parámetros locales y regionales, haciendo especial hincapié en la gestión y en los contactos a través del Mediterráneo y empleando el análisis histórico y de gestión. Los resultados revelan que las empresas de la Corona de Aragón, de las cuales Torralba es un estudio de caso, se beneficiaron de un enfoque de gestión integral y avanzado, y que, por consiguiente, la posición de las élites mercantiles tuvieron un lugar destacado en la conformación del espacio mercantil mediterráneo. De ello se concluye que el peso de los últimos siglos de la Edad Media, considerando el área del Mediterráneo Occidental, resultara esencial en la transición para construir un espacio económico de corte moderno.

Palabras clave: historia de la gestión, administración de empresas, negocios bajomedievales, Corona de Aragón, Joan de Torralba, teneduría de libros

Introduction

The purpose of the research is an analysis of the business techniques actively used by the merchants of the Crown of Aragon at the end of the Middle Ages through a case study of the commercial activities of Joan de Torralba, a merchant who operated in fifteenth-century Barcelona. We study them to find out the pattern of how these companies operated during the late medieval ages, giving special consideration to the 'management' aspects of the companies. However, they are almost always based on an incomplete picture, since there is not much information preserved. It is usually sections of the book or parts, but the data is still priceless. For most companies of merchants from the Crown of Aragon, only one accounting book has been preserved. In other cases, there is information available from notarial or fiscal documentation, but that alone is not enough to fully understand the operation of these companies. Therefore, the case of having twelve completely preserved accounting books is unique; on top of that uniqueness, they are all in chronological order. They are in the National Archive of Catalonia and corresponding to Joan de Torralba. Furthermore, in his commercial activity, we identify the complexity of business running that indicates the advancement of managerial techniques among merchants. Hence, the central objective is to analyse the mentioned company to prove the development of management and bookkeeping techniques in the late medieval Crown of Aragon. The novelty of the study is that such an analysis could be made only when there is a complete picture of the data necessary to verify our hypothesis, that the origin of the modern corporate system can be found in the companies established in the last medieval centuries. A deduction that we have from the partial analyses of these companies carried out so far can be verified or

not by applying - some modern management parameters. We acknowledge the risk of analysing a medieval company with contemporary methods but believe it can provide valuable insights into similarities and differences in operation and management. Exactly what we do with our company. Meanwhile, we may intuit the similarity with other companies, attempting to approximate and re-create but not prove it empirically.

It is important to mention some aspects of why this company was chosen. The first one, and most straightforward, the presence of all the books throughout the whole chronology of Joan's activity. However, there is another essential point. Our case is (how we would call it today using modern terminology) SMEs — Small and Medium-sized Enterprises.¹ Studying small-sized companies provides valuable insights into a diverse range of business aspects, including innovation, entrepreneurship, community impact, and resource management. Understanding the challenges and strategies of small businesses enriches our understanding of the broader business ecosystem and contributes to a well-rounded perspective on business administration.

The Catalan mercantile companies in historiography

The interest in mercantile societies is linked to Mediterranean expansion, maritime trade, and navigation, aspects that have attracted the attention of historians. In the 1970s, two magnificent works were translated about the world of Barcelona's merchants — Mario del Treppo and Claude Carrère. They both approached, from different perspectives, the

¹ For the international European panorama, notably compared to Italians vanguard companies, however, it is a reasonably big company within the Crown's business circles.

issue of the so-called late medieval “crisis” and included in their analysis topics such as commercial methods (Del Treppo 1976, Carrère 1977-78). In the 1980s, Josep Maria Madurell and Arcadi García published a magnificent analysis of Catalan mercantile societies from a historical-legal perspective, focusing their research on the formation and development of the partnership contract and providing a selection of documents from the Historical Archive of Protocols of Barcelona (Madurell and García 1986). Notarial contracts are the documentary basis used by Nuria Coll to reconstruct the origins of several companies that operated in 15th century Barcelona (Coll 1968, 1981), and by Coral Cuadrada and María Dolores López in their analysis of the economic characteristics and levels of operation of societies in the 14th century (Cuadrada and López 1991).

The notarial sources, on which the research of Madurell and García, Coll, and Cuadrada and López are based, provide extremely important information about the movement of capitals and commercial activities in the merchant sector by recording not only the establishment of companies but also sales, insurances, commissions, loans, etc. However, they do not record the daily activities of the merchant, which are reflected in the accounting books. In the Barcelona archives, there are preserved accounting records that reflect the activities carried out by individual operators or mercantile societies, although they are extremely rare. The surviving records show enormous heterogeneity due to the different realities and needs of the companies or individual merchants who generated them. The management systems used differently according to the levels of complexity of their businesses and are always adapted to the goal of managing commercial data. Medieval companies had, according to their size, or even

more so, according to the complexity of their businesses, main books, and subsidiary books.

In the present day, researchers have primarily focused their attention on the accounting books deposited in the Archive of the Cathedral of Barcelona and the National Archive of Catalonia. The Archive of the Cathedral of Barcelona houses more than 70 manuscripts, in the section known as “*Extravagants*,” series ‘*Comptes de companyies, comerciants, navegants, etc. (1268-1864)*,’ which record the accounts of companies or merchant voyages. Conscious of the importance of making these economic sources known, Madurell published in the 1960s the accounts of a 14th-century Barcelona society, the Mitjavila Company (Madurell 1965 and 1966); a research endeavour that was later taken up by Víctor Hurtado (2005, 2007). The archive also has the books of the Tarascó Company, transcribed and studied by Elisa Varela (1995), and those of the merchant Joan Gasull, analyzed by Juanjo Cáceres (2011). Within the same collection, the records of the journeys of Joan Benet to Cyprus and Sardinia are preserved, which attracted the attention of Maria Vilá (1977) and Josep Plana (1983), as well as those of Berenguer Benet to Romania, studied by Daniel Duran (2002), or the ship captained by Arnau Espaer and Romeu d’Olzinelles, navigating the Mallorca-Honein-Mallorca route, analysed by José I. Padilla and M.D. López (2013, 2021) and Daniel Duran (2009). These works mostly delve into the reconstruction and analysis of societies and merchants operating in 14th century Barcelona.

The most important documentary collection on medieval Catalan companies, however, is located in the National Archive of Catalonia, where the patrimonial fund of the Palau Requesens is deposited. Among the numerous documentation that integrates this patrimonial fund, there are the accounting records of two

15th century Barcelona merchants, Joan de Torralba and Joan Sabastida, as well as parallel documentation necessary for the reconstruction of the companies in which they participated as partners. The documentation of the merchant Torralba, our case study, was made known in the late 1960s by Mario del Treppo, outlining the lines of action of the Torralba Company (Del Treppo 1976). In 1985, José Angel Sesma renewed his interest in this company following the discovery of its articles of incorporation in the notarial records of Zaragoza. Although the importance of this company was highlighted by the works of Del Treppo and Sesma, it wasn't until 2013 that further studies were conducted. In that year, M.D. López published an article on the wool business of Torralba with Italy, which marked the beginning of the research currently being carried out by our research group, GRAMP-Med, where one of the primary objectives was to analyse the accounting books of Joan de Torralba.

His accounting books are currently the focus of several competitive projects of our research group, GRAMP-Med, within the framework of which the transcription, edition, and study of the 12 preserved books are being carried out (López et al. 2019, Benavides and Casado 2019, Viu 2021, 2022), yielding promising initial results with the priority objective of being able to generate, for the Crown of Aragon, an economic model comparable to that established for Tuscan companies, thereby enabling the design of parameters that can be handled as models of action by economic actors of the Crown of Aragon (Abulafia and López 2020, Viu 2021).

In this fast-developing world through innovation and trade growth, daughters, wives, and widows played a decisive role; decisive, among other aspects, as sole responsible

parties in the event of becoming widows, taking charge of investments, purchasing goods, being partners in companies, and managing commercial accounting. While it is true that the History of Women is a fruitful and rich research pathway in the Spanish Academy, the achievements and training of daughters, wives, mothers, and widows of merchants are a relatively little-known aspect. An exception is the work of Gemma Colesanti and Martina del Popolo, which focuses on the analysis of the four accounting books of Caterina Lull, the second wife of Joan Sabastida (Colesanti 2008, Colesanti and Del Popolo 2020). The mastery with which she managed the inherited investments denotes prior learning, as a co-participant in the family business and, probably, as the sole investor in some of them.

The Torralba Company: Ledgers, Journals and Economic Characteristics

Torralba was the founder of a company that emerged in the first half of the 1400s and was initially founded by partners of Aragonese origin, Joan de Torralba and Fortuny de Manariello, established in Barcelona, and a partner from Zaragoza, Juan Feixas. It arose with the aim of trading two primary products of the Aragonese export to Barcelona and then to Italy: wheat and wool. During its more than twenty years of operation, from 1425 to 1447, the company interwove a network of interests in the Italian markets, taking advantage of a favourable situation in the wool market and the growing demand from Italian textile centres. The company's businesses were only one part of our merchant's investment schemes, possibly the one that generated the least profit, allocating a considerable percentage of his capital to other forms of investment carried out individually and beyond the company. Without quitting his partners and the wool business, Torralba designs new strategies and explores different markets, conditioned by the novel

international situation. He continues to invest in strictly commercial activities in Naples, Tunis, Mallorca, and Alexandria. At the same time, he set up ties with the major Italian banks of the Four Hundred (the Bernardi and Garzoni, the Soranzi and, strikingly, the Balbi and the Medici) while evolving intense business with the members of the Tuscan and German communities. They traded in the squares of Barcelona, Zaragoza and Tortosa. It also underlines crucial business concerning public debt operations, the arming of corsair vessels, the redemption of captives, and the purchase of the rural and urban real estate, without the purpose of an abandonment of the mercantile profession (Abulafia and López 2020, Viu 2021). The unprecedented nature of this company lies not in its operation, comparable to most companies in the Crown of Aragon, but in the conservation of XII accounting books related to the administration of the company and the private business of one of the partners, Joan of Torralba. These records, currently kept in the National Archive of Catalonia, have been transcribed and partially published (López et al. 2019, Benavides and Casado 2019, Viu 2021, 2022). The companies and the commercial activity in general of the Torralba are a key element for exploring the processes of Europeanisation-internationalisation of trade and the formation of a market economy that, broadly speaking, is initiating to resemble the appearance of the economic system that we know today. The study of the matters introduced, assuming the businesses of Torralba as the subject of analysis, will make it feasible to comprehend the economic behaviour of the mercantile elite of the Crown of Aragon, providing alluring components in the debate on the ingenious role of late medieval merchants. Merchants as actors in the economic realm, as well as social, contribute to shaping a new European space while cultural

changes took place in Europe during the transition from the Middle Ages to the modern age. This space sees intense commercial relationships developing at an international level, generating for the first time a commercial macro space understood in modern terms. This integrated economic system would contribute to the construction of a European mentality. Torralba lived in a world that is emerging from a profound restructuration, now understood more as a structural alternation and a reconversion, more as 'creative destruction' dynamics than as a unilateral and widespread depression. From this perspective, it would provoke a dynamic of growth. A positive interpretation of the crisis of the 1300s, now tendentially prevalent, values the positive aspects of the demographic downturn. This enabled a more rational use of land, abandonment of marginal lands, an increase in wages, and a process of productive specialization both in the agricultural and manufacturing spheres.

Based on the analysis of accounting data, Torralba creates business networks that align with the networks formed by the Catalan merchant sector during the 14th and 15th centuries. These networks consist of centers of varying importance that are integrated with each other. The main question is how the late medieval economic recession affected these markets and, as a result, how it may have impacted the investments made by Torralba and its partners. A sectoral analysis of the different markets frequented by the merchants of the Crown of Aragon in the Western Mediterranean, an area of intervention for the Torralba company, appears to confirm recent "diagnoses" of historiography regarding the non-recession of commercial activities in the last medieval centuries. The frequency of contacts with the markets of Sardinia, the ports of Sicily, southern Italy, Nasrid Granada, or the

Maghreb areas etc. - indicates a continuity, even an increase in business volumes. Thus, crisis parameters do not seem to affect the trade developed in the areas of the Western Mediterranean. It is therefore in international trade where the fastest changes are visible, linked to a boom in local economies and markets driven by credit and, above all, by an increase in demand. The weight of external demand, restricted to a few attractive products, combined with a growing domestic market capable of directing productions. Therefore, new routes, new exchanges, new techniques, and new goods characterize this "First Global Age" (Casado 2011). In this regard, we believe that in line with the debates surrounding the meaning of globalisation and its possible historical precedents, the commercial development of Western Europe could condition, along with new political circumstances, a redesign of commercial circuits and modifications in economic orientations. The profits from this international trade, whose transfers were facilitated by the creation of a network for settling advances and international debts negotiated through bills of exchange, enabled the accumulation of capital in dynamic centres such as Genoa, Venice, Milan, Florence, or Barcelona – profits upon which the expansion towards overseas territories was founded. This expansion, accelerated and reinforced in the 16th and 17th centuries, allows us to hypothesise about a 'First Globalisation' already by the late Middle Ages.

What are those modifications? Modifications materialise in the routes due to foreign competition, as well as setbacks in some marketplaces due to political conflicts. There are also transformations in the very nature of exchanges, in the range of goods being traded. The increasing importance of agricultural products and raw materials - such as cereals,

oil, nuts, saffron, wool, etc. - enhances local economies in some cases, as they specialise in the production of these commodities. The integration of luxury items with others of low value but of daily use and high demand allows for adjustments in freight. The pressure exerted by foreign operators drives some of the reorientation of crops aimed at meeting external demand. Therefore, the effects of the crisis must be seen in this sense, as a restructuring motivated by the effects of demand and an adaptation of the capacities of each of the commercial centres. Torralba and his partners are skilled merchants who took advantage of these changes to intervene in two of the most active sectors with the greatest growth potential in the second quarter of the 15th century: the commercialisation of cereal, which is always deficient in Mediterranean cities, and wool, a product constantly demanded by the main Italian textile centres (López 2013, Abulafia and López 2020).

Alongside, the study of our merchant in the framework of the trade that he carried out suggests access to the panorama of late medieval trade and an approximation of the evolution of corollary economic thought (Schwartz 2001, Navarro 2020).

The historical evolution of the economic system - real practice - i.e., the change like the object of economic theory, plays a key role at the end of the XIV at the beginning of the XV century. It is the logical continuity of scientific knowledge and the advancement of its intellectual process. Of fundamental importance in the development of economic culture are real changes in the economic life of society, where the commercial activity of Joan de Torralba may serve as an excellent example for our geographical area. It is the commercial activity and real changes that led to the origin of various scientific schools and new economic directions.

The priority of empirical studies in social sciences as a nucleus against theorising has been remarkably defended by De Roover. Likewise, the words of Robert Lopez may point out the relevance of small-sized businesses for general awareness in socio-economic research - "first gather the facts, explain the smaller problems that each of them involves, and finally see what general theory, if any, can be built upon them" (Lopez 1948, 63). Similarly, it is necessary to mention a curious fact that would help to understand the pivotal limitation of the interpretive process when it comes to medieval and temporally distant companies. As expressed by Sturdy and Fleming, "mental constructs cannot be directly observed, and must be put into action - operationally or discursively - to be impactful" (Sturdy and Fleming 2003) - implies another perspective of interpretation that is based on the analysis of the techniques, policies, and behaviour but not ideas per se, therefore the preserved accounting books, Articles of Incorporation, private letters and the way and manner of conducting the business, provide us with valuable information to simulate the contemporary reality of our merchant (Jones 2008). Furthermore, the recreation of the company of Catalan and Aragonese origin can also provide a space for a comparison study with the Iberian accounting and management model to define the clear differences in the entrepreneurship that took place between the companies of Crown of Aragon and Italian in what refers to the mercantile and accounting realm (Hernandez Esteve 2006, Marí and Álvaro 2020).

Data collection and methodology

This chapter outlines the research design, data collection methods, and analytical approach employed in the study of late medieval

company management. The goal of this research is to gain insights into the organisational structure, decision-making processes, and economic practices of late medieval companies in the Crown of Aragon. This study adopts a historical research approach to investigate late medieval company management. It involves the examination and interpretation of primary and secondary historical sources to reconstruct and understand the organisational and managerial practices prevalent during the late medieval period. The selection of case studies is based on historical significance, availability of relevant sources, and diversity in the types of sources. The commercial activity of Joan de Torralba has been chosen for analysis. The documental base of our research consists of the XIII accounting books corresponding to the management of Joan de Torralba and preserved in the National Archive of Catalonia (see Annex II).

All these books are stored at the ANC (Arxiu Nacional de Catalunya), under the Requesens fund. We have 3 ledgers (*llibre major*), 3 journals (*manual*), and 8 account books (*llibre de comptes*) at our disposal. Additionally, there are two boxes of loose documentation (fragments, letters and notes).

The documentation referring to the Torralba company is found not only in the National Archive of Catalonia but also in other archival collections. The investigations carried out to date have made it possible to locate relevant information in the archives of those centres linked to the company and its partners, enabling the analysis of cases not sufficiently explained in the accounting records. In this sense, the Articles of Incorporation have been crucial, uncovered in the archives of the Zaragoza notaries Antón de Aldovera and Salvador de la Foz. The latter has provided information concerning the partners, the social

capital, and the system of operation of successive companies. The above-mentioned has allowed us to work with two types of data: quantitative and qualitative. The reading and interpretation of the collected data have made it possible to reconstruct the company's organisation chart and forms of activity.

The considerable volume of data from transcribing the eleven accounting books made it necessary to design a database. This base focuses on the details of the administrative structure of the companies, with relevant information regarding accounting data. FENIX, the name of the dataset, aims to use and process the data compiled with analytical and statistical criteria to be able to interpret them in the double keyway - financial and social - (Travé, López, Casado, Álvaro and Marí 2018, Travel and Casado 2020). There is a possibility to see the interface of the aforesaid integrated system for data gathering and management FENIX in Annex II.

The research utilises a case study method to focus on selected late medieval companies as representative examples of the broader management practices of the time. By employing in-depth case studies, this research aims to provide a comprehensive understanding of specific companies' management structures and operations.

Macro outlook of economic climate

Economic, social and cultural shifts that took place in the transition between the Middle Ages and the Modern Age - contributed to the design of a new European space in which significant commercial ties were developed at a supra-national level. Commercial space was generated for the first time in a way it is understood in modern days, as an integrated economic system

that would eventually contribute to the building of a European mentality. In the XV-XVI centuries, in Western Europe, there was a period of unconscious attempts to create a 'single market' within a certain territory as a basis. Italian cities were the benchmark of economic and commercial expansion in the medieval centuries. They were spreading their operational pattern to other cities such as Barcelona, Valencia, Zaragoza or Mallorca, making possible the accumulation of capital necessary for the subsequent overseas expansion at the time of the Early modern period, the theory that was heavily supported by M. Del Treppo and Giampiero Nigro. They defended the theory that Tuscan companies, that were presented in Catalonia, had a considerable impact on converting Barcelona into the one of the most important financial centres of the time. The same as Tuscan companies contributed to the spread and the wide usage of the bills of exchange and promoted the market of marine insurance. Cities of the Crown of Aragon were satellite-like objects of Italian centres when it came to techniques and knowledge diffusion. The latter gives a special place to the royal cities of the Kingdom in business history. That is why commercial history has focused its interest, for decades, on the "great trade", in which these and other Italian cities exercised the guiding pattern as poles of growth and spread of mercantile techniques and economic thought (Rothbard 2006, Schumpeter 1954, Melis 1962). However, nowadays, there is a way new view on the matter of the question and paying a higher attention to the power of "local market" rather than the 'great trade' and one of the first to indicate that was José A. Sesma (Sesma 2006).

During this period, an increase in the number of consumers should be mentioned. Consequently, growth in demand which caused the extension

of products offered on the market took place. It was, however, in the fourteenth and fifteenth centuries when a market was determined by the search for profit and capital accumulation alongside the concept of rationality that tended to change the old forms of production (Igal 2008). It was produced to sell, not in nearby markets, but to respond to international demand. Simultaneous development of various factors such as the spread of checks, promissory notes, bills of exchange, double-entry accounting, maritime insurance and the rise of banking (Palermo 2008) played their decisive role. The response lies in those late medieval centuries and the operation of the major European business companies.

Late medieval merchants, among which Aragonese, Catalan, Valencian and Mallorcan tradesmen, were the leading actors in building a *modern like economy*, where multilingualism, alongside the growing role of women in the management of mercantile companies, played a remarkably prominent role. To intervene safely, businessmen needed specific knowledge about the functioning of the markets and the factors that could impact their business, both in product transactions and financial transfers. The accumulation of knowledge acquired through commercial practice was recorded in the Ledgers and private notes. In these books, the relevant information is reflected — inter alia tax systems, currency values — but the continuous changes in market conditions required immediacy and instantaneous access to changing circumstances on which knowledge success or failure may have influenced commercial performance. In the fast-moving reality of innovation, exchange and circulation of knowledge and skills, daughters, wives, and widows played a decisive role, despite not being trained with the same skills as those acquired by their brothers or husbands (López, Cuadrada and Travé 2023).

It is no secret that networking is crucial. Networks could have gone beyond solely family limits. It was about social networks that made merchants successful, along with protection during their journeys, accompanied by the required information for the prosperous running of their businesses. The mobility of these economic elites, and their installation in the main European business centres, even in the Maghreb, encouraged the circulation of ideas in heterogeneous but deeply permeable societies, where these newcomers -privileged foreigners- swung between insertion and social adaptation. However, there was always osmosis between natives and foreigners, along with the cultural transmission of commercial techniques. The obvious thing was that the cultural level of the mercantile sector differed concerning the extent of the business carried out and the geographical location of its economic interests. Knowledge is the nucleus of being successful in the undertaken commercial activities. First and foremost, the merchant had to know the situation on the foreign markets, like the prices of the products or the supply levels at a given time, and always had to be attentive to a political situation, circumstantial, that could cause dysfunctions in the normal operation of the market (Kohn 1999). We should not bypass that the world of information was vivid and altering, and the markets tended to fluctuate with just the arrival at the port of a merchant ship with the most recent information on distant places. The most experienced factors dealt with obtaining news about prices, the acquisition of raw materials or the functioning of the markets, and sometimes they could synthesise the facts acquired in the so-called 'merchandise manuals' (Cuadrada 2019). Hence, the need to have loyal and reliable agents in the most important markets was an absolute must (Erikson and Samila 2018).

When discussing late medieval management,

we are not referring to it in the same way as we speak about modern management practices today. The concept of 'management' as we understand it today, with its formal structures, theories, and systematic approach to organising and leading organisations, did not exist in the same form during the late medieval period. In the modern context, management involves a set of principles, practices, and theories developed over the last century or so, with roots in the industrial revolution and the rise of large-scale organisations. It encompasses concepts such as organisational hierarchy, scientific management, human resources, strategic planning, quality control, and more. In contrast, the late medieval period (the 14th to the 16th centuries) predates the development of modern management theory. During this time, societies were organised differently, and the economy was primarily agrarian and feudal. There were no formal business corporations or modern industries as we know them today. Instead, economic activities were often localised, with guilds playing a significant role in regulating trade and craftsmanship. While some basic principles of management, such as leadership, communication, and organisation, have always been present throughout history, they were not approached or defined in the same systematic and structured way as in modern management. When we talk about 'late medieval management,' we are usually referring to how economic activities and social structures were organised during that period. However, it is important to recognise that these practices were shaped by the historical context and were quite different from the sophisticated management practices we see today. So, while we can study and analyse how economic activities were managed during the late medieval period, it would be incorrect to apply the term 'management' in the same sense as we do in contemporary discussions of modern

management practices, hence by management we always mean the administration practises that we are able to trace and intention to "translate" them into modern management language, exclusively to facilitate the comprehension and better visualisation.

Accounting

In urban centres, especially during the late medieval period, as trade and commerce began to develop, some rudimentary forms of mercantile accounting emerged. Traders and merchants would keep records of their inventory, purchases, and sales, often in the form of journals or ledgers. In the Middle Ages, far more than any public authority, the needs of a business required merchants to compile account books. Despite the tight relationship between accounting and taxation, the indifference of the legislator in accounting matters is therefore not a topic of current interest (Gual 1981). Nevertheless, a riveting notion arose in the Middle Ages - merchants kept secret books, by the latter should be understood documents to which no public had access. These were presumably management tools, for making an internal assessment. Consequently, no legal status was recognised. Before the courts, in case of conflict, only the ledger was valid. However, it could also be the subject of litigation (Muñoz 1603). The foregoing emphasises the main reason for accounting book studies, specifically the interpretation and awareness of the commercial world of late medieval times to build, locate and observe, the line of accounting development, and the capitalist world.

The basic principles and fundamental practices in accounting were established between the 12th and 15th centuries, a period during which innovative techniques, such as double-entry accounting, emerged, paving the way for the

improvement and dissemination of modern accounting methods. From the 15th to the 21st century, significant technological advances and changes in accounting methods occurred, the foundations of which were established in the earlier period. Therefore, it is necessary to study accounting practices in pre-modern Mediterranean Europe from the current understanding and perception of management and accounting to understand Torralba's accounting practices. While not our primary objective, understanding how our merchant records their operations will provide significant insights into interpreting the management of the company.

We have evidence of the use of simple forms of accounting, which met the financial control needs of Mediterranean European merchants, as early as the 12th century. Initially, accounts were only used to record credits and debts, as well as receipts and payments, but it soon became clear that this mechanism could be useful for many other business objectives. These early examples showed that there were two different types of variations affecting the object of accounting. As a result, the typical form of an account was already established. This development was a significant step forward in the evolution of accounting and paved the way for future advances. In parallel, companies underwent rapid organisational evolution. The most influential innovation was the establishment of limited liability—commenda—alongside unlimited liability—company—(Malanima 2009). However, it was not until the 13th century that the double-entry accounting system was introduced in some Tuscan companies - each operation being recorded in opposite sections, debit and credit - ensuring complete control over the company's business (Steensgaard 1982). For some researchers, this system was a crucial factor in the success of capitalist

rationality. It spread across Europe from northern Italy, often through Italian merchants and their interactions with local traders.

With the growth of trade, the role of accounting expanded, and knowledge of accounting methods became increasingly important. Basic double-entry accounting was typically learned on the job, although the emergence of the corporate sector created a demand for trained auditors and investigators, leading to the formation of the modern profession of chartered accountant in 19th century Scotland. Today, the accounting profession enjoys great prestige and continues to evolve, with accountants playing a vital role in ensuring the financial success and stability of businesses worldwide. Italian merchants and their interactions with local traders.

Prior to the mid-1800s, accounting practices did not distinguish between business and personal expenses. Attempting to separate the two was usually futile, and today it's unnecessary as accounting standards have evolved over time due to changing economic, social and technological factors. During the late medieval period, some merchants, mostly from the Mediterranean region, had more structured entries, even though it was a single-entry bookkeeping style. However, business transactions and personal expenses were still recorded together, making the analysis of accounting books from this time more exigent and more complex for researchers.

The origins of modern accounting practices can be traced back to Italy, where Italian merchants were pioneers in developing effective ways to manage their accounts to meet the demands of their trade. The first banks, such as the Bank of Venice (1157) and the Bank di San Giorgio in Genoa (1407), were also crucial factors in the development of accounting practices. These banks continued to operate successfully until

the late 18th century. Additionally, several merchant bankers, such as the Medici in the 14th century, established branches throughout Europe, leading to the rapid growth of banks and a significant boost to bookkeeping. The importance of Italian accounting advancements lies not only in the invention and use of double-entry, but also in two other equally important aspects: firstly, the existence of separate accounting books for different businesses, and secondly, the hierarchy among books. Different detailed books, such as *giornale* (journal), *ricordanza*, *entrata e uscita* (cash book), *mercanzia* (merchandise book), and other specialist books like a ledger, were maintained separately for different businesses. This helped in the proper management and tracking of accounts. (Goldthwaite 2011, 2015).

The Italian case provides evidence for the genuine origin of double-entry accounting. In the earliest known example of Florentine merchants' accounting books from the 12th century, we can see cross-entries. This is a method where credit entries are recorded on one side and corresponding debt entries are recorded on the other side of the page. The culture of separately listing the entries was an Italian divisible feature, e.g. the accounts book of Medici could be clearly distinguished between three types: the Stock Book, the Cash Book, and the Bill Book. Irrespectively that Medici maintained the classical form of narrative – income and spendings were written down one below the other and oppositely – in any case, gives a unique and first tendency into forthcoming double entry style. Another vivid illustration could be preserved accounting book (1305-1308) of the Gallerani in London. As argued by C. W. Nobes (1982), this book meets a substantial part of the requirements of the double entry stated by De Roover (1956), Martinelli (1977), and Lee (1973). Thus, the book could serve as one of the earliest

examples of the double entry accounting.

For additional reading regarding the Florentine bankers/merchants consult some sources: **Peruzzi** (Hunt 1990,1994, Vannucci 1993, Saporì 1926); **Bardi** (Hunt and Murray 1999, Hunt 1990, Saporì 1926, Renouard 1938); **Peruzzi** (De Roover 1956, Goldthwaite 2011, Renouard 1938); **Datini** (Melis 1950, 1962, 1991, Michienzi 2013, Jouanique 1996, Orlandi 2018, Nigro 2010); **Salviati** (Carlomagno 2009, Houssaye Michienzi 2016, Matringe 2016, Scherman 2020); **Frescobaldi** (Saporì 1944, Tognetti 2014); **Gallerani** (Melis 1950, Bigwood 1962, Nobes 1982); **Medici** (De Roover 1946, 1963, 1947, Ghosh 2006, Goldthwaite 1985).

The accounting books used by the Genoese merchants and bankers have many similarities to those used by the Florentines. However, there was a significant improvement in bookkeeping among the Genoese, which emerged in the late 14th century. This improvement involved placing the "income" section on the left and the "spending" section on the right. As a result, the Genoese merchants and bankers were the first to provide clear evidence of double-entry accounting in the modern sense. However, it is unclear whether Genoese bankers used double entry bookkeeping in the past, but we do know that the ledgers of the *massari* and *magistri rationali* in 1340 were definitely kept in double entry bookkeeping. We have no record of any changes in accounting methods required by statutory laws, so we can assume that the ledgers have been kept according to the same rules since 1327. Therefore, we can infer that Genoese bankers also kept their ledgers in

² Archivio di Stato di Genova, Communis Janue, Massaria no. 1 (1340) and no. 2 (1340-1351). Archivio di Stato di Genova, Communis Janue, Introitus et Exitus, Cartullarium Magistrorum Rationalium, Registro no. 44 (1340). circles.

double entry bookkeeping² in 1327. However, we cannot prove this, as no ledger from that time has survived. The earliest ledger of Genoese bankers in the State Archives of Genoa is dated 1386, which is more of a manual or cashbook than a ledger.

There are very few surviving account books and records from the thirteenth and fourteenth centuries in Venice, that does not allow a coherent view on the evolution of Venetian accounting practice (Besta 1909, Melis 1950, Martinelli 1977), and the remaining ones from the fifteenth century are relatively scarce compared to other Italian cities. Nonetheless, these sources provide enough evidence to indicate that double-entry bookkeeping was widely adopted and perfected among Venetian merchants. In the case of Venice, their economy was specialised in long-distance maritime trade. Therefore, information provided by the ledgers of these merchants is crucial in studying the macroeconomy of the Late Middle Ages.

The Soranzo Fraterna, a family partnership consisting of brothers Donado, Giacomo, Piero, and Lorenzo Soranzo, owned the earliest surviving set of Venetian account books. Their trading company was active during the first half of the 15th century and specialised in importing raw cotton from Syria (Lane 1944, Chatfield 1996). The two accounting registers of the Soranzo enterprise are known as the *Libro Vecchio Real* and the *Libro Real Novo*³ in Venetian. The 'old book,' or *Libro Vecchio Real*, covers the period from 1410 to 1416 and contains 51 sheets, while *Libro Real Novo* covers the period from 1406 to 1434. *Libro Real Novo* is a compilation of distinct financial documents. Based on Sieveking (1901) and

Ryabova (2018), it is known that the *Libro Vecchio Real* does not have both profit and loss accounts and capital accounts; hence, the accounting system could be described as incomplete. While *Libro Real Novo* has the full set of accounts required to be a double-entry ledger: there were debit and credit entries, written opposite each other, and a profit and loss account and a capital account, indicating the advance in the bookkeeping in Venice.

Concerning bookkeeping of Joan de Torralba, we are fortunate to have 13 books in excellent condition. Analysing the accounting techniques used by our merchant enables us to establish guidelines of accounting practices in the territories of the Crown of Aragon, by comparing with data we already have concerning other companies. We would like to provide a general overview of bookkeeping techniques, without going into too much technical detail. Our aim is to focus on management research rather than accounting. However, it is important to note that accounting is a vital source of information for understanding a company's management. As an example, we will look at the Account Book (Journal) of the Company of Joan de Torralba with Joan de Manariello, from Saragossa (ANC1-960-T-157).

- o The text opens with a traditional prayer to holy figures, including Jesus and Mary, seeking their blessings for the endeavours documented in the account book. Evidence of the merchants' need to seek divine protection for the proper development of their businesses is also evidenced in the donations made to the churches they revered.
- o The merchant, Johan de Torralba, is introducing himself and his business partner, Johan de Manariello de Caragoca (Zaragoza). He mentions that they have been partners

³ As suggested by Tommaso Zarbi (1952) and Ryabova (2018), we are fully aware that this book was compiled from various accounting records to be presented during the trial held before the Venetian judicial body (*giudici de petition*).

since the beginning of the year 1436 until the end of the year 1437, hence the book dedicated to this specific period of their partnership.

- o The text includes detailed financial transactions conducted by partners:
 - Payments made to various individuals, such as Domingo del Vilar, Bernat d'Algars, and Lluís Vives, either directly or through intermediaries.
 - Purchase of items, including grain from Aragon, currency exchange transactions, insurance payments, and the acquisition of goods like pine nuts.
 - Sending goods, such as clothing for church use, to specific recipients, like Pero Cabanyas' wife from Azuara [province of Zaragoza].
 - Receipt of goods, like a silk cord, sent for the merchant's wife, Ürsula, as mentioned in the "Manual honzè" in a specific letter.
- o The text contains periodic summaries of transactions, showing the total amounts involved in various dealings. These summaries give an overview of the merchant's financial activities during a specific period.

It records debts and credits with various individuals and cities. It lists people from Barcelona to whom money is owed, along with the amounts owed to each. Additionally, there are accounts with individuals from outside Barcelona, such as Saragossa, Pisa, Venice, etc., with debts expressed in different currencies like pounds, sous, florins, ducats, etc. Each debt is detailed with the exact amount owed, as well as specific details such as the reason for the debt, items bought or sold, and other commercial transactions. Every entry seems to

be meticulously recorded, indicating the transaction date, debtor details, exact amount, and any relevant additional information. The accounting is organised into different categories and subcategories, such as debts located in Barcelona, debts outside Barcelona, and old debts with people from Pisa and Venice, suggesting clear and structured account organisation.

Regarding the accounting kept by our merchant, Joan de Torralba boosts curious questions.

Commence with a remarkably impressive clause that should be said — despite widespread use of the double entry in accounting across the Mediterranean, mainly in Italy, but even in Catalonia, Valencia and Aragon — our merchant was in favour of the use of "*classical accounting*",⁴ which refers to single-entry⁵ bookkeeping. Nevertheless, it should be stressed that the system, even though it was not the double entry of its common form, considering assets and liabilities divided and calculated in unison with the essential rule of accounting, we should necessarily mention how advanced it was and accurate in matters to carry it out with a proper and progressive form. The enormous administrative task posed before the accounting was the collection and processing of complete and reliable information

4 Classical accounting, also known as traditional accounting, refers to the historical and foundational principles and practices of accounting that have been in use for several centuries. It represents the early stages of accounting development and lays the groundwork for modern accounting systems. Classical accounting methods were established before the advent of modern technologies and complex financial transactions, and they were primarily used during the pre-industrial and industrial eras.

5 Late medieval accounting was primarily based on single-entry bookkeeping, which involved recording transactions in a simple ledger. Transactions were recorded as they occurred, often in a chronological order, without the use of debits and credits.

on the activities of an economic entity, since said information was used mainly for two purposes:

- a. Decision-making based on the economic analysis of gathered information.
- b. Implementation of financial control.

If point *a* is tricky to prove since no information has been kept on the analysis of the current accounts by the partners to enable us with the support that said point took place in the operation of the companies with Joan de Torralba. However, keeping in mind all the transcribed documentation leaves us with a place to possess explicit information, meaning that point cannot be eliminated, but with the current information, it does not explain that there is such documentation. Regarding point *b*, it is corroborated by the information available. The presence of eleven meticulously written accounting books with final balances of the pages and established periods, with details of the entries and payments applied by Joan de Torralba, translates into complete and inclusive financial control.

In this regard, beyond doubt, the conserved

accounting of Joan de Torralba's commercial activity performs its function to conduct the business satisfactorily. Financial control, being an integral part of control in the activities of an economic entity, was one of the key management tools. It is proof of compliance by the entity for the interests of the partners when it comes to the context of the fifteenth century. One of the main conditions for the implementation of financial control functions is the availability of objective and updated financial information. The carriers of said information (in a detailed and generalised form) are the accounting documents.

In the case of the activity of Joan de Torralba and its accounting books, the four documents have been integrated into consolidated ledgers. They are not found separately, which implies a detailed examination of the books and their systematisation, albeit simplistic, in order not to lose the original thread, but to use current techniques to carry out an exhaustive and coherent interpretation.⁶

Nonetheless, in case of considering the modern formulation it is curious, to consider, for

TABLE 1. THE PRESENCE OF KEY ACCOUNTING DOCUMENTS IN THE CASE OF JOAN DE TORRALBA

Key documents	Its presence in commercial activity of Joan de Torralba
Accounting source documents	+
Register	+
Financial statement	+
Stock-taking	+

Sources: own elaboration.

⁶ "Presentation of Financial Statements" Standard IAS 1, International Accounting Standards Board. Accessed 24 June 2007.

example, points such as statement of financial position, profit and loss report, statement of equity, cash flow statement and comprehensive income statement, they are impossible to be observed either in its modern sense or the way of creating it. First, on the establishment of the first company with Joan de Torralba, in 1425, the book "*Summa de arithmetica, geometria, propotioni et propotionalita*" by Luca Pacioli, which he released in the year 1494, has not yet been published. It is known that the work of Luca Pacioli is only a record of an explanation of the best practices known and used by his contemporaries. The aim was to collect a complete standardisation and classification of existent techniques (Smith 2018). Another example is Benedetto Cotrugli's book "*Della mercatura e del mercante perfetto*", published only in the year 1573, but which had been written in 1458 (36 years before Pacioli's book) specifies that the trade conducted by our companies with the participation of Joan de Torralba coincides in time with what we call the official formalisation and establishment of double-entry accounting before it was empirically used by Italian merchants during the 13th-14th century. The earliest extant accounting records following the modern double-entry system in Europe come from Amantino Manucci, a Florentine merchant in the late 13th century (Lee 1977).

Everything, indicated above, provides the first of the justifications for the non-use of double entry by our merchants, due to the comparatively slow process of extension of the updated practice. Likewise, it is worth emphasising that the first example of said double entry is rudimentary and far from meeting the practically founded and consolidated rules (de Roover 1937). However, after analysing the accounting books of Joan de Torralba, and examining his business career, another reason emerges that has its rational

place - opting for single-entry bookkeeping was not caused by Joan de Torralba's ignorance but by considering it unnecessary. It is pointless for a medium-sized business, and besides the absence of an external audit that would force it to execute and comply with rigorous regulations.⁷

It makes sense to mention the advantages of using the Single-Entry System in our bespoke case. Firstly, it was more cost-effective. Furthermore, in the single-entry system, we register only one entry for each transaction, therefore this was time savings for the business. A more sophisticated system was not necessary. It also gave the manager the required information about sales and profits, so they could make decisions accordingly. And eventually, perhaps the most meaningful thing was that any written document was used as a confirmation or proof. The single-entry account book records all transactions; hence it can be used as supporting documents.

Our operational hypotheses begin with this initial panorama. The data provided by the documentation on which our investigation is based - infers that the company founded by Torralba was a trading company capable of taking advantage of a favourable context and international relationship networks that would consolidate in the second half of the fifteenth century. These far-reaching shifts in the forms of economic relationships entail a substantial evolution in the articulation of the European continent, which witnesses its international relations tighten from a novel standpoint, which goes beyond political relations, which were sometimes tense or conflictive. Indeed, the late medieval mercantile world was a

⁷ According to John L. Carey (1969, 17-18), audits were required by law in England for the first time only in the year 1845.

pioneer in transforming European business matters in favour of multilingualism, people's mobility, wealth increase, and knowledge spread.

Company's analysis

The preservation of the XII accounting books of Joan de Torralba makes it achievable to study the internal management of his company. In consideration of being aware of the socioeconomic reality of the time, it is curious to deal with the question of the internal management of a medieval company, of Catalan-Aragonese origin. The process of sustaining a business is closely linked to the management and its type implemented by the equity partners. However, here it is worth saying separately the position of the top manager of one of the founding partners - Joan de Torralba. His private letters, accounting books, and notarial documents conserved to this day helped us to rebuild his business, accentuating the part of decision-making and governance.

Joan de Torralba, Aragonese, settled in Barcelona in the early years of the fifteenth century, being granted citizenship shortly after. The first news regarding the company places us in 1425. That year Joan de Torralba and Fortuny de Manariello, both citizens of Barcelona, although of Aragonese origin, and Juan Feixas (Fexas or Flexas), from Zaragoza, founded the first company whose duration is stipulated in two years, from December 1, 1425, to December 1, 1427, and with a constitutive capital of 10,000 Barcelona pounds, contributed 40% by Feixas (4,000 pounds), and 30% by each of the Catalan partners (3,000 lbs. each).

In 1428 the society was renewed. On this occasion, the share capital is contributed in equal parts by the three partners with a total of

12,000 pounds (at a rate of 4,000 pounds each). After a new biennium, the company was renewed in September 1430, with a change in terms of capital and partners. The changes in partners pointed towards a simplification of the organisation chart, as the governing body was reduced to only two members. Feixas left the company, and the share capital became 10,000 pounds of Barcelona currency contributed in equal parts by two sole partners, Joan de Torralba and Juan de Manariello. The rest remains unchanged in terms of the areas of commercial intervention —Aragon and Italy—and the products object of trade —wheat and wool-. The administration, therefore, ventured into a short period, renewable according to perspectives, a characteristic comparable to most companies analysed in Barcelona, Valencia, and Mallorca.

New changes took place in 1438. That year the company was renewed for two years (from January 1, 1438, to December 31, 1440)⁸ new partners were incorporated: Domingo Sanz, a resident of Zaragoza, and Bernat d'Algars⁹ from Barcelona. With inferior capital, only 6,000 florins (in the previous companies the capital was counted in pounds), were invested at the rate of 2,000 fl. by Torralba and Manariello each, and 1,000 fl. by Sanz and D'Algars. Its areas of intervention were specified in Aragon and Catalonia without expressly mentioning the Italian markets but leaving available the option of acting in other territories. Torralba and Manariello withdrew from direct management and delegated direction to minority partners. An aforementioned business structure would

⁸ The chapters in the Historical Archive of Notarial Protocols of Zaragoza (hereinafter AHPNZ), Antón de Aldovera 2400, loose paper, 1438.

⁹ Chapters signed in Alcañiz, in the absence of Joan de Torralba [AHPNZ, Antón de Aldovera, 2400, f.12.v. (Alcañiz. 12, February 1438)].

last until the end of the 1440s.

Under the data available, it can be deduced that Torralba, Feixas & Manariello, with a founding capital of 12,000 pounds, later Torralba & Manariello, with an initial investment of 10,000 pounds, and then Torralba, Manariello, Algars & Sanz with 6,000 florins, may have been included among the large operating companies in the Crown of Aragon in the first half of the XV. Del Treppo assessed these skills employing the classification made by F. Melis of Florentine companies as a comparative index. On a classification based on six groups, the first with capitals greater than 75,000 florins from Florence, and the last companies with less than 10,000 florins of founding capital (Melis 1962), the Italian historian concluded its position between the fifth group and the sixth, depending on whether we consider the capital

or the personnel.

It was a relatively medium-sized company even for that time. Being a profit entity dedicated to commerce within the Crown of Aragon and internationally, it automatically entails a comparatively solid managing system. Nevertheless, it is necessary to distinguish the fact that it was not a very large company of the epoch, such as that of the Medici, Datini or Casaldáguila. Nonetheless, it is indispensable to consider a company of other dimensions to ascertain that management was practically versatile with the ability to adapt itself to the commercial flow and current geographic extension. As in the ancient world, medieval cultural norms may have made the general adoption of legal personality for business seem counterintuitive. Theological concerns largely dominated economic thought, and we can

TABLE 2. POSITIVE ASPECTS OF FISCAL POLICY IN THE CROWN OF ARAGON

A	<i>clear trade protection after interventions in fiscal policy and social security;</i>
B	<i>stimulation of domestic consumption likewise demands (but when it comes to distinguishing between private demand and public demand before the eighteenth century, it is very complicated or almost impossible) for consumer goods; demand for services; demand for capital were treated by the government;</i>
C	<i>governmental management to reduce transport costs;</i>
D	<i>development of urban infrastructure, similarly, converting Zaragoza as a priority and Barcelona into opportune and convenient hubs to carry out commercial activity;</i>
E	<i>well-established connection between Zaragoza and other cities of supply and stocking with raw material (the main source of foreign trade) and Barcelona, on the other hand, as a valuable port and logistics city when it comes to foreign trade with Italy and Venice essentially;</i>
F	<i>highly favourable municipal legal framework of the Aragonese capital in conjunction with the county capital;</i>
G	<i>measures of protectionism (viz. social and fiscal protectionism).</i>

Sources: own elaboration.

affirm that our company has not been omitted, yet with some certainty, it can be admitted that the Catalan business circles and its administration already in the fifteenth century began to perform in a more “modern” way as the companies of the XVI-XVII century.

It is worth underlining that the environment created by the Catalan-Aragonese government was nothing less than an encouraging reality for commercial expansion (Ferrer 2012). It is due to a fairly balanced policy and what we nowadays call the support system. Certainly, it should be mentioned that it is not the same as today, there was no public investment fund, for instance, or a government credit model, however, the Crown of Aragon, ontologically, did not experience excessive regulations within a fiscal system that apply the risk of impeding economic and commercial innovation. Even if the Crown of Aragon had severely restricted commercial law, merchants would devise alternative ways to achieve the same end away from public surveillance. A more multifarious environment of business forms, including those that explicitly prioritise social ends. It deserves to highlight a basic definition that took place in the medieval world. Capital is one of the indispensable factors when we talk about any economy. Likewise, it is reasonable to state that what it consumes is no longer available for investment by merchants, thus the absence of a surplus troubled the circulation of capital and, therefore, caused an imbalance in constant consumption that all pre-industrial European regions experienced. However, it is possible to facilitate some points of the successful Aragonese fiscal policy.

Some key facts about Zaragoza. The city experienced and played a fundamental role at the time of the economic expansion, despite not having such a strategic geographical location as Barcelona. Zaragoza does not have an open and

direct access to the Mediterranean Sea, which was a significant factor during that time, but Zaragoza was a redistributive center for raw materials. While Barcelona, we may call a commercial centre. It is the wide representation of the elite of the city, in many cases being merchants or bankers, in municipal leadership, thereby lighting the way for commerce and entrepreneurship (Kadens 2015). Everything mentioned above expresses the advantageous external governance for the growth of our company. They continued to be our main partners of Aragonese origin, creating and forming their entities before notaries in Zaragoza—it allows us to extrapolate the Aragonese socio-economic reality to the operation of our company and its genesis. On the one hand, this company is a tangible demonstration of the international projection of Aragon's kingdom and the role Zaragoza played in the Mediterranean trade networks. Evidence of how the response to the difficulties of the 14th century meant a reorientation of economic activities and intensification of relations between operators in Catalonia and Aragon, intending to connect the production of the inland territories with the coastal commercial centres, particularly Barcelona, and achieve a notable international expansion, already apparent in the first decades of the XV (Sesma 1982,1985,2005, Viu 2019).

Among many successful qualities of Joan de Torralba that have helped him to become a distinguished trader during the first years,¹⁰ we would like to start with the principle of ‘staying out of politics’,¹¹ and the first years of

¹⁰ After the year 1434, he began to invest in government bonds, however, he did not experience the bad luck of other banks or merchants of his time going bankrupt after dealing with dubious business relationships with monarchs.

¹¹ Chapters signed in Alcañiz, in the absence of Joan de Torralba [AHPNZ, Antón de Aldovera, 2400, f.12.v. (Alcañiz. 12, February 1438)].

our company's operation the rule was fulfilled, which is seen by the stay out of politics and the engagement on the business both within the country and abroad. Traders should not get involved in politics or the courts, "because they are dangerous areas", on the contrary, they must possess a series of personal qualities if they want to be successful in their businesses. The unknown Catalan author of the *Llibre de conexenses de spícies, e de drogues e de avissaments de pessos, canes e mesures de diverses terres*, written in 1385 (Gual 1981),¹² explains what these qualities are. A merchant should, in addition to being discreet and wise, gather a series of attributes, not only commercial but also ethical and moral: providence, faith, truthfulness, love, loyalty, diligence, temperance, sobriety, religiosity and good health, to being able to travel the world and attend to their business (Cuadrada 1994, 110). Aptitudes analogous, on the other hand, to those expressed in the well-known trade manuals and, are repeated as a decalogue of essential virtues to exercise the "Arte de la mercadería" (Cuadrada 2019). And among them is the importance of charity: "the merchant must be generous in extending his hand to the poor and in giving alms from his property in proportion to its extension." (Cotrugli 1458). The anguish for the afterlife, the uncertainty or, sometimes, the full security of not meeting the requirements to achieve eternal salvation, pushed these merchants to make large donations, to the churches that were the object of their devotion, or to establishing testamentary legacies, do not differ so much from the creation of current foundations by companies and banks or aid to NGOs. Our company allocated around 10 pounds a year as a donation to the churches of Santa Maria de

Montserrat, in Barcelona, and Santa Maria de Portillo, in Zaragoza, as stated in the record that we reproduce, some amounts, on the other hand, scarce if we stick to the company's investments.

Libro secreto (1430-1432) / Secret book (1430-1432) [f.142v]

Avem dat a madona Santa Marie de Monserat

We have donated to Lady Saint Mary

of Montserrat VII.

Avem dat a madona Santa Maria del Portello, los qualls dony contants a don Johan de Manariello de present

We have given to the Lady Saint Mary of Portello, which I give in payment to Sir Johan

de Manariello as a present..... IIII ll. VI s. VIII

Applying modern management principles to a late medieval company can be challenging due to the vast differences in the historical context, social structures, technology, and economic systems between those times and the present day. However, some aspects of modern management can potentially be adapted or integrated into a late medieval company to improve efficiency and effectiveness. It's important to recognise that attempting to impose a fully modern management system on a late medieval company may not be practical or culturally appropriate. Instead, the goal should be to identify principles that align with the historical context and can be adapted to improve the company's overall performance while respecting the limitations of the time. Moreover, the specific company's location, size, and nature of business will heavily influence the feasibility of implementing certain management practices. Using modern concepts to study the late medieval period allows us to approach the subject with a critical and analytical mindset, enabling to gain deeper insights into historical events, human behaviour, and the dynamics of medieval

¹² Published by Miguel Gual Camarena (1981).

societies. However, it is essential to strike a balance between applying relevant modern concepts and understanding the unique characteristics of the historical era being studied.

Foremost, there is a certain necessity to define the methods that can be used when analysing management, especially when the discourse is about medieval management and the times before the formalisation of management sciences. As references, works such as Strang and Wittorck (2019); Mitev et al. (2018); Scandura & Williams (2000); Buchanan and Badham (1999); Burrell and Morgan (1979); Butler (1986); Eccles and Nohria (1992); Alvesson and Willmott (2012); Huber (2019) - were used. The modern approach to management formulated by H. Fayol (1916), founder of the (classical) administrative school of management, is presented below. The objective is to apply his ideas and principles to our company to create a modern-like vision. The table represents the detection or non-existence of the xiv principles formulated by H. Fayol.¹³ The adoption of such a method allows us to attempt to visualise a modern estimation regarding the management system of this Catalan-Aragonese entity to pinpoint its coherence. The relevance of such a study is a medium-sized company and [simultaneously] a company not located in the Italian or English territory, where it is possible to go to the extensive studies available. The analysis per se is achievable after studying the vast collection of preserved accounting books, private letters

and articles of incorporation of the company. The presumed comprehensive image provides a high-quality overview of the late-medieval management framework and what the corporate structure was like across the Crown of Aragon. Even though the relationships between partners and employees considering the circumstances were built above all on fiducia and an interpersonal network, it is possible to contemplate a vestige of a certain corporate culture. Organisational culture influences how people interact, the context within which knowledge is formed, and ultimately how they share (or don't) knowledge. Given what has been stated, it is worth mentioning the existence of this culture in the commercial sphere of Joan de Torralba. Certainly, the structure lacks the modern complexity introduced by E. H. Schein (1990) and E. Jaques (1951, 1956, 1961), who proposed a more interdisciplinary approach in administrative culture.

Division of labour had a clear path framed by understanding the phenomenon in the fifteenth century's reality. Since our company was small-medium in size, a broad hierarchy cannot be observed (due to a lack of personnel), however, the division is seen above all: geographical specialisation and the distinction of capabilities. Since the existence of the learning process in carrying out continuous work, in addition to devoting all time to a single approach, an economic agent would be more likely to master the necessary skills or develop more advanced technological methods than if he divided his time between different types of work increasing the performance of the business as a whole. Anyway, the late medieval division of labour was distinct from modern industrial economies, and it shaped the economic and social dynamics of the time, yet it could not be fully extrapolated by the modern reality. The division of labour almost automatically entails clear **authority**

¹³ Fayol's principles of management were significant in shaping modern management practices and continue to be influential in organisational management theory. However, it's essential to note that the concepts may have their limitations and might need to be adapted to suit the specific context and complexities of modern organisations, same as they need some "corrections" when applied to a medieval entity.

TABLE 3. THE IDENTIFICATION OF THE CONTROL PRINCIPLES EXPRESSED BY H. FAYOL IN THE MANAGEMENT SYSTEM OF TORRALBA COMPANY (15TH CENTURY)

PRINCIPLES OF CONTROL	ITS PRESENCE IN OUR CASE
Division of labour	+
Authority	+
Discipline	+
Unity of command	+
Unity of direction <i>(see the note)</i>	-
Collective interest over individual interest	+
Remuneration	+
Centralisation	+
Scalar chain	+
Order	+
Equity	+
Stability of tenure of personnel	?
Initiative <i>(see the note)</i>	-
<i>Espirit de corps</i>	+

Sources: own elaboration.

and responsibility for each member. That builds a stronger way of running a business. The formulations that support it are the articles of incorporation of the companies, where the responsibilities and roles of each signatory are observed. The discipline that obedience implies stands out with the fact of the jove system used by the capitalist partners.¹⁴ Each young man in its modern interpretation was an employee who acted as a first-line manager.

Item mes, an concordat que la demunt dita companya tinga quatre jovens, es a saber: hu en Tortosa, lo qual per salario e misio aga cent florines; y el altro que estiga ab lo senyor en Johan Flexas y qual le aga a fer la misio de

boca en casa sua y com yra de fora la ciutat per la companya, que la dita companya li aya a dar doze dineros per dia pera misio y mes li aga a dar la dita companya son salari que li sera promes; y el altro joven que stiga ab Johan de Manariello en la manera del d'en Johan Flexas; y el altro jove que stiga ab Johan de Torralba en Barcelona y quel la faça la misio e la companya li pach son salarii.

Also, it has been agreed that the aforementioned company will have four 'young men', namely: one in Tortosa, who will receive a salary and a mission payment of one hundred florins; and another who will be with Sir Joan Flexas and who will carry out the mission of speaking on his behalf at his house and when he goes outside the city for the company, the company will give him twelve diners per day for the mission, and the

¹⁴ The word "jove" directly translated into English from Catalan as "young men", however in our context it refers to apprentice..

company will also give him his promised salary; and another young man who will be with Joan de Manariello in the same way as with Joan Flexas; and the other young man who will be with Joan de Torralba in Barcelona and who will carry out the mission, and the company will pay him his salary.

Unity of command in the case of our company exists in its explicit form, that is, each equity partner has his team (it used to be just one person but not always) of subordinates, nonetheless submission to other partners has still never been practised but neither can it be said that it did not exist.¹⁵ For instance, during the first company 1425-1428 there is a clause, which clearly expresses the subordination of the joves, their salary and the mission carried out (The Articles of Incorporation 1425-1428, Viu 2019). In the late medieval period, the concept of unity of command as formulated by Henri Fayol in modern management theory did not exist in the same structured form. The late medieval period had a very different social and organisational structure compared to the industrialised and modernised societies where Fayol's principles were developed. During the late medieval period, the division of labour and management were largely shaped by feudalism, a hierarchical system where power and authority were concentrated in the hands of monarchs, nobles, and feudal lords. The concept of a formal management hierarchy with a chain of command, as we understand it today, did not exist during this time. In medieval societies, leadership and decision-making were often determined by birthright, social status, and tradition. In the late medieval period, individuals generally followed the authority of their feudal lord or guild master, and there was a clear hierarchy of power. However, the idea of

a unified and formal chain of command across all levels of society, as advocated by Fayol, was not a prevalent concept during this historical era.

A **direction unit** is a point that is sophisticated to accept but at the same time exclude. Since the management unit and the entity must have a clear and defined action plan that is also written. Nevertheless, it should be stressed that the companies set up by Joan de Torralba always had the same objective and the responsibility was assumed by the capital partners, which does provide the basis for the control unit, but given that for now with the transcribed documentation it is impossible to sustain that the company had the written and documented supervision and evaluation of the commercial activity. The concept of unity of direction is closely related to the idea of coordination and harmony within an organisation. In the late medieval context, unity of direction was more implicit and inherent in the hierarchical social structure than it is today.

The **subordination of individual interest** to the general interest is reflected in any company charter, where it is emphatically stated that the business strategy is focused on the goals of the entity and any activity outside of that is restricted. As far as it is said, it seems logical the **remuneration** that must be paid to the employees and a fair distribution, which adjusts to the part invested, among the capitalist partners. All information is always recorded in the company's articles of incorporation, they are the main sources concerning salaries.

Centralisation and decentralisation — the natural and socially hierarchical structure of late medieval society assumed centralisation, although on rare occasions a weak one as in the case of the Medici, but it is still centralised, it casts an almost non-delegated authority and mainly taken among the equity partners in

¹⁵ This principle emphasises the importance of ensuring that employees receive orders and directives from only one manager or supervisor.

Barcelona and Zaragoza. All in all, it should be pointed out again that our companies do not have a very large workforce, which certainly translates into a reduction in the probability of a certain affirmation of the impossibility of an undoubted diversification of power. Regarding the **scalar chain**,¹⁶ it is confirmed with an infallible example — it is the case of Bernart d'Algars. A young man and employee, perhaps even an apprentice of Joan de Torralba in the year 1438, was part of a company as a partner where our merchant Joan de Torralba was also present. In addition, during the last company, both were part partners-capitalists of the same level. The scalar chain did not have this clear path that is observed today, but neither is it a modern nor alien notion to late medieval Aragonese society. It used to be a longer, thornier road and did not always lead to a promotion.

Order¹⁷ **and equity**¹⁸ — have a unique spot in the commercial activity of Joan de Torralba. Order is nothing less than a crucial point for the prolific functioning of a business entity. If the work is not defined in advance, labour

segregation loses its identification, which leads to the precariousness of the business. In the particular case of Joan de Torralba, due to the small-medium sizes of the entities — management is easier and more tactical. Concerning fairness, one fact should be mentioned - the companies formed with Joan de Torralba always had one thing in common: they were all formed by Aragonese, whether they were citizens of Barcelona, but always with *friendly ties* from Aragon. What does it mean? Since trust (*fiducia*) played a compulsory role at the time of forming a business, it did not seem strange to create a company with previously known people and equally create an equitable environment.

Stability of tenure of personnel — we do not have any source that expresses staff loss. In the beginning, it is important to point out that the articles of incorporation stated of not being able to carry on other businesses apart from the formed company. However, after studying the acts and accounting books, they highlight the prolonged permanence where the abandonment of the position was only after finishing the biennial period, usually for ageing reasons. However, this principle neither would be achievable due to the small size of the company and lack of clear statements of members of all levels.

Lamentably, when it comes to the **initiative**, it is challenging to give precise answers, since the available documentation does not allow it because it does not document occasions of this type. In the context of the late medieval ages, the principle of 'Initiative' was not a formal concept in the same way it is understood in modern management practices. During this period, the social and economic systems were vastly different from what we have today, and the idea of individual initiative, as we know it, was not a prominent aspect of the workforce or

¹⁶ The Scalar Chain, also known as the Hierarchy Principle, is one of the fourteen principles of management introduced by Henri Fayol in his book 'General and Industrial Management' (1916). The Scalar Chain emphasises the importance of clear and unbroken lines of authority and communication within an organisation. According to Fayol, a well-defined hierarchy is essential for effective coordination and smooth functioning of the organisation.

¹⁷ Order refers to the organisation and arrangement of resources and activities within a company to achieve efficiency and effectiveness. In the late medieval period, businesses and trading ventures were conducted within a structured framework. Hence, the principle is fully applicable.

¹⁸ Equity in the context of late medieval companies refers to fairness and justice in dealing with employees, business partners, and customers. Although the medieval period had hierarchical and feudal social structures, there were efforts to ensure some level of fairness in commercial interactions.

business practices. May it be argued that it never happened? Undoubtedly not, because the fact of unwritten conversations or communication between people reflecting and debating suggestions and proposals cannot be abolished. Given this, it is not relevant to emphatically exclude it, but neither would it be scientific to approve it without any clarification.

The last point is **team spirit**, which is certainly an integral part of any business entity. "Morale is the ability of a group of people to persistently and consistently unite in pursuit of a common purpose" (Leighton 1949) - creates the core of business success no matter what time is referred to. In the case of Joan de Torralba, using the Italian concept of fiducia as a nucleus of medieval business implies a decisive link by creating a common purpose for the operation of the companies created between 1425 and 1458 with the participation of Joan de Torralba. Let's apply *contradictio in contrarium*, that the absence of group spirit would cause inefficiency and decrease profit margins, thus contributing to the cessation of commercial activity, which is a falsehood because the documents deduce the contrary.

General discussion

Analysing a late medieval company's management and administration can provide valuable insights into the historical practices and organisational structures of businesses during that era. While the specifics of each company would vary based on its size, industry, and location, several specifics and themes can be traced. Understanding the administration of business in the late medieval period enriches our understanding of broader historical trends and events. Economic factors often play a role in shaping political decisions, conflicts, and societal changes. Perhaps, a more significant point in studying the late medieval

administration system is that the era witnessed the considerable evolution of financial instruments like bills of exchange, promissory notes, and rudimentary forms of banking. Exploring business administration from this period allows us to trace the origins of many modern financial practices and institutions.

We may name the following points as the main results. Firstly, by looking at the commercial activities of Joan de Torralba, one can see that the complexity and diversity of management do not always accompany the use of more complicated accounting systems. Late medieval companies relied on basic record-keeping and single-entry bookkeeping to track transactions, resources, and obligations. Financial records were often simple and focused on essential information for managing the company's affairs. Therefore, showing the influence of personal qualities and knowledge in the field of management. Secondly, accounting books have primarily narrative functions, although they display the full range of trading (and non-trading) activities. Cash accounting, also known as a 'journal', is used for both single-entry and double-entry bookkeeping. In single-entry, however, only income and expenses are recorded chronologically, with no revenues and costs. Though, in Joan de Torralba's ledgers, we find revenues and costs statements. The income statement and balance sheet in a separate accounting system cannot be derived directly from the journal entries. This requires the accounting inventory. In this inventory, all expected costs and revenues are collected, so that an overview is created of all receivables and debts. In addition to these receivables and payables, the expenses incurred for investments (in the costs) are removed from the costs, to be capitalised. After that, the depreciation can be calculated. Since inventory is a cumbersome problem, most companies and organisations of any size operate with a double-

entry bookkeeping system, tried to avoid it. Hence, the path is clear to re-create the company's financial statements, because it is viable with accumulated data and accounting books of Joan de Torralba. Nonetheless, it requires more time and meticulous calculation of all the data (which is available) but not the whole range of private documentation of Joan de Torralba is transcribed. The latter deterrent prevents us from rebuilding a whole chain and network crafted by Joan de Torralba. Relationships and patronage were crucial in late medieval business. Companies relied on personal connections and networks for various purposes, including sourcing materials, accessing markets, and securing protection or support from powerful figures. Another intriguing fact to mention is that the main disadvantage of a single-entry accounting system is the incomplete control system. Though this disadvantage is not met in the ledgers of Joan de Torralba. The records and entries are highly systematic and well-organised. Concerning the control system, we do not doubt that the used way of record met the needs of the merchant entirely.

Additionally, and maybe even more significant, is the introduction and presentation of the management system of Aragonese merchants. The historical importance of management in small companies lies in their role as engines of innovation, local development, and economic growth. Effective management practices within small companies have shaped economies and contributed to the evolution of management theories and practices over time (Diéguez-Soto et al. 2016). It gives the picture of how companies operated and the mercantile way of thinking in late medieval Barcelona, Zaragoza and other cities of the Crown of Aragon. Such information is of value when dealing with the essential sector (the second after agriculture, as in any other territory of those times) of the

Aragonese economy, like the commercial one. To gather different sectors together and interconnect them, would be the only way to re-create the socio-economic reality of the late medieval Crown of Aragon. We do not have enough Aragonese documentation of that exact period, and the case of Torralba is distinctive since it provides us with Ledgers, acts of foundation and notarial documentation. Hence, on this solid basis, we may give one more instance that the emergence of management lies (in the modern sense) in the last centuries of the Middle Ages, while society was in transition to a Modern Age. Also, it is important to highlight that The Crown of Aragon was not only a powerful kingdom with considerable dominance in the West Mediterranean but also a place for the enhancement of managerial techniques.

Limitations and future research directions

Regarding the limitations, the principal limiting aspect of this study may be called, in the first place, incompleteness of deciphered sources. Many personal letters might disclose confidential and vital information about the way of thinking and the decision-making process. Undoubtedly, it is an integral part of the management and the drive of the investigation. The data is the fructus of personal musings, and that makes it easier for us to change the angle of analysis and perception of the analysed information. As we treat a small-sized company - it is invaluable to depict the whole image of a business functioning in the Crown of Aragon. A microdot of that system - the company of Joan de Torralba is surely one of them - assists in the macro re-creation of both commercial and managerial reality of that momentous period. Put another way, the Torralba company facilitates highlighting the

pattern of the Catalano-Aragonese business operation style. Further comparative analysis with other Aragonese companies - where the Ledgers are presented- would open the door to formalising the Catalano-Aragonese business identity.

Practical implications

Concerning the potential application of the current study, it is nothing less than an exhaustive understanding of the evolution and development of management. Primarily when we look at an entity, not being a bank or a company of a large dimension that covers all pre-industrial European financial centres such as Bruges and London, but a company with exclusively Euro- Mediterranean geography -notwithstanding the African and Levantine coasts as well under cases-, although being of a lesser extent, consequently more representative. The analysis contributes to constructing a complete image of late medieval management, recreating the succession of the emergence and formation of administration and management sciences.

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Declarations

We declare that this paper was composed by us, that the work contained herein is our own except where explicitly stated otherwise in the text, and that this work has not been submitted for any other reviews.

Data availability

The eleven conserved Ledgers used throughout the research are stored in the National Archive of Catalonia. They are coded as follows: ANC1-960-T-157, ANC1-960-T-211, ANC1-960-T-3000, ANC1-960-T-3003, ANC1-960-T-3004, ANC1-960-T-3065, ANC1-960-T-3187, ANC1-960-T-3189, ANC1-960-T-3200, ANC1-960-T-3274, ANC1-960-T-3277, ANC1-960-T-4240, ANC1-960-T-4782, ANC1-960-T-5206. The above-mentioned data supporting material is available digitally on an official website: <https://arxiusenlinia.cultura.gencat.cat>

ANC1-960-T-4787 - is unavailable and must be requested in advance for a personal consultation in the Archive.

Otherwise, the listed material can be accessed in transcribed form in the following books:

- i. M. Dolores López, Enrico Basso, Gerard Marí, Esther Travé, De Aragón a Venecia. El «Llibre major de comerç de llana blanca amb Itàlia» de la companyia Torralba (1433-1434), Barcelona-Torino, Publicaciones Universitat de Barcelona, Università di Torino, 2019. <http://diposit.ub.edu/dspace/handle/2445/172050>
- ii. Jesús Benavides, Iván Casado, La memoria del mercader. El «Manual honzè» de la compañía Torralba (1434-1437), Barcelona, Publicacions Universitat de Barcelona, 2019. <http://diposit.ub.edu/dspace/handle/2445/179001>
- iii. María Viu, La contabilidad privada del mercader barcelonés Joan de Torralba. El «Llibre de comtans» (1430-1460) y el cuadernillo de deudas con Pere de Sitges (1432-1448), Barcelona, Publicaciones Universitat de Barcelona, 2019. <http://diposit.ub.edu/dspace/handle/2445/179002>
- iv. María Viu, Los libros secretos de una compañía comercial de la Corona de Aragón: la Torralba-Manariello (1430-1437), Barcelona, Publicaciones Universitat de Barcelona, Università degli Studi dell'Aquila.

The dataset FENIX is not available for external use. The availability is exclusively internal by the members of the investigation group.

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ANNEX I. OVERVIEW OF THE COMPANIES

Headquarters – Zaragoza¹⁹ and Barcelona;²⁰

Items of commerce - mostly wheat and wool, but also to a lesser extent: leather, saffron.

Geography of operation - Crown of Aragon, Florence - Pisa, Genoa, Venice, Sardinia, South France, Ancona, Sicily, uppercase S - Selected cases of Joan de Torralba, as a solo-trader - Tunisia, Maghreb and Levant.²¹

Delegation - Tortosa²² (Crown of Aragon);

Trade officers - Domingo Pandetrigo (Tortosa) Antoni Ferruz (Tortosa);

The typical contract system used by Joan de Torralba - is biennial.

TABLE A1. BRIEF OF ALL TORRALBA'S COMMERCIAL ACTIVITIES BETWEEN 1425 AND 1458

<i>Chronology and composition of Torralba's commercial activities</i>					
Years	Membership	Capiatl	Owner's equity	Operational range	Notary
1425-1427	Joan de Torralba; Fortuny de Manariello; Juan Feixas	10.000 ll.	J.F. = 4000 ll. J.T. = 3000 ll. F.M. = 3000 ll.	Corona de Aragón, Florence, Genoa, Venice, Ancona.	Salvador de la Foz (1426), Zaragoza
1428-1430	Joan de Torralba; Fortuny de Manariello; Juan Feixas	12.000 ll.	J.T. = 4000 ll. F.M. = 4000 ll. J.F. = 4000 ll.	Corona de Aragón, Florence, Genoa, Venice, Ancona.	Salvador de la Foz (1428), Zaragoza
1430-1432	Joan de Torralba; Fortuny de Manariello	10.000 ll.	J.T. = 5000 ll. J.F. = 5000 ll.	Corona de Aragón, Florence, Genoa, Venice, Ancona.	Salvador de la Foz (1430), Zaragoza
1432-1434	Joan de Torralba; Fortuny de Manariello	10.000 ll.	J.T. = 5000 ll. J.F. = 5000 ll.	Corona de Aragón, Florence, Genoa, Venice, Ancona.	Salvador de la Foz (1432), Zaragoza
1434-1436	Joan de Torralba; Fortuny de Manariello	10.000 ll.	J.T. = 5000 ll. J.F. = 5000 ll.	Corona de Aragón, Florence, Genoa, Venice, Ancona.	Salvador de la Foz (1434), Zaragoza
1438-1440	Joan de Torralba; Juan de Manariello; Domingo Sanz; Bernart d'Algars	6000 fl.	J.T. = 2000 fl. J.F. = 2000 fl. D.S. = 1000 fl. B.d'A. = 1000 fl.	en Aragón y en Catalunya e en altres parts, si per les dites parts concodat serà'	Antón de Aldovera (1438), Zaragoza
1440-1447	Joan de Torralba; Juan de Manariello; Domingo Sanz*; Bernart d'Algars*	6000 fl.	J.T. = 2000 fl. J.F. = 2000 fl. D.S. = 1000 fl. B.d'A. = 1000 fl.	en Aragón y en Catalunya e en altres parts, si per les dites parts concodat serà'	Antón de Aldovera (1440), Zaragoza
1447-1454**	<i>It is known that commercial activity during this period occurred, however, there was not any registered company, hence the activity was exclusively individual (the latter is confirmed by personal books and letters of Joan de Torralba)</i>				
1454-1458	Joan de Torralba; Joan Sabastida; Francisco de Junyent; Bernart D'Algars; Joan de Riumany;	2153 ll. 2 s. 6 d.	J.T. = 469 ll. 16 s. 6 d. J.S. = 662 ll. 10 s. F.J. = 331 ll. 5 s. B.d'A. = 331 ll. 5 s. J.R. = 331 ll. 5 s.	Sicily, the Adriatic, Munt de barques (Libya), Levante.	Bartomeu Costa (1454), Barcelona

Sources: own elaboration.

¹⁹ We may presume that Zaragoza served as a logistical and stock hub for the company, considering that all the raw materials for trade were directly sourced from Aragon, which we refer to as a region.

²⁰ Barcelona may be presented as the "commercial and financial hub" of a company.

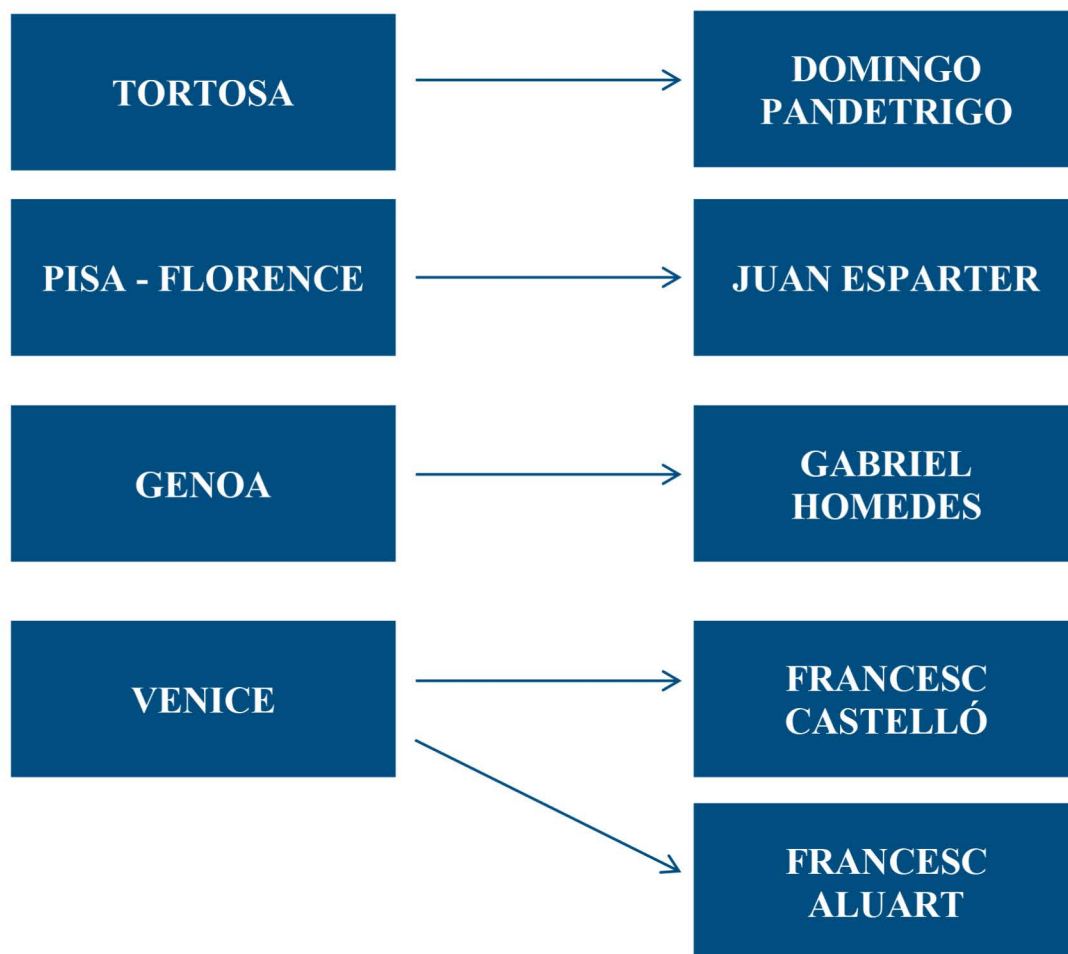
²¹ López María Dolores (2020), Joan de Torralba y la apertura de nuevos mercados: el negocio magrebí, Mercados y espacios económicos en el siglo XV: el mundo del mercader Joan de Torralba, Mediterraneum, Universitat de Barcelona, pp. 227-256.

²² Tortosa is a logistic hub primarily for overseas trade, being as we call it nowadays traffic hub.

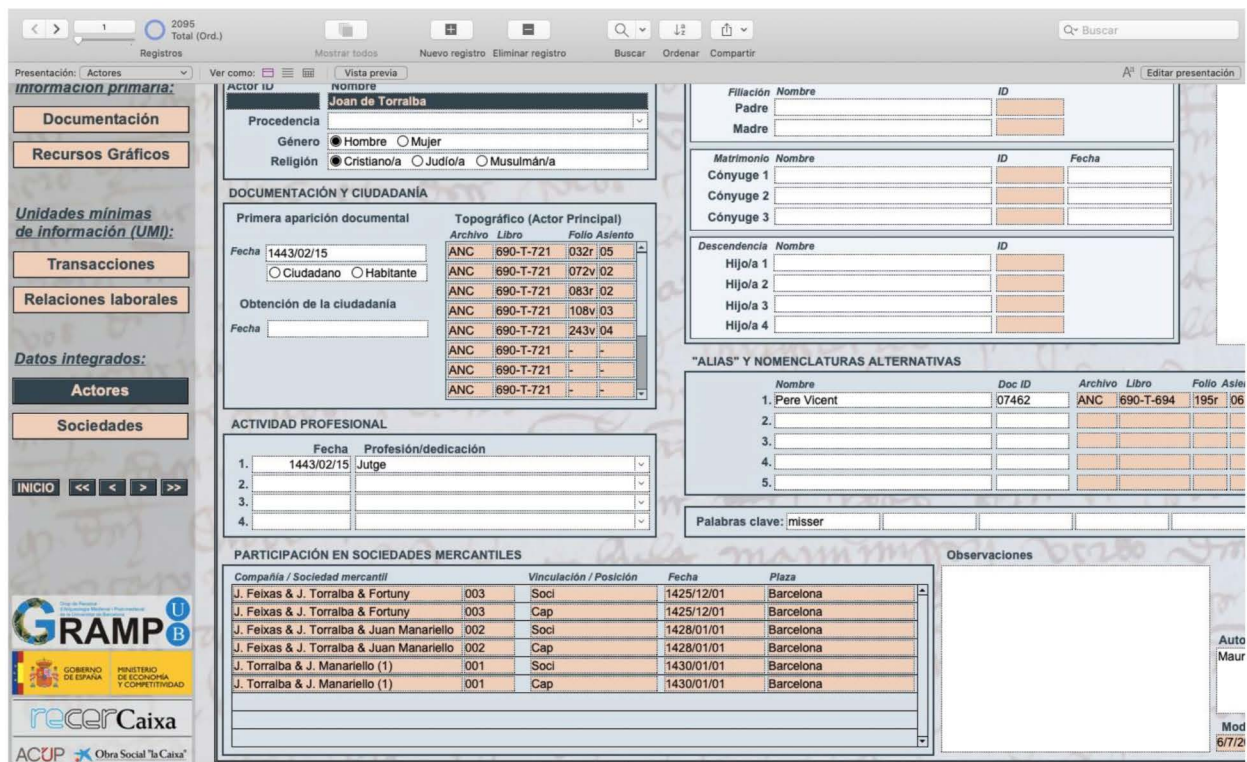
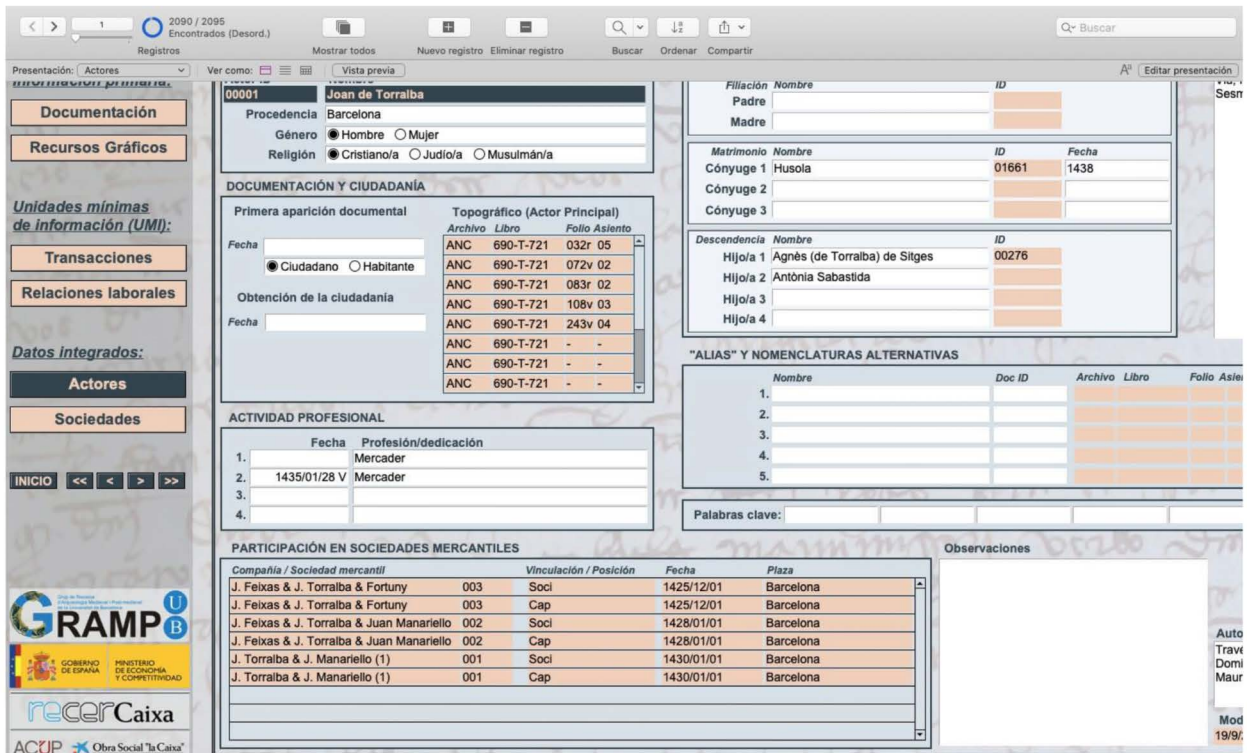
How to read the table A1:

- *Fl. - florins of Aragon.* If the currency originally is indicated in florins of Aragon without any remarks about the exchange rate into Libra, we leave it unchanged.
- Companies of [1438-1440]; [1440-1447] operational range translation from Catalan: *In Aragon and Catalonia and other parts (of the world), if it is agreed by the parties.*
- The company of [1454 - 1458]: The original quantity is expressed in carlins de Cicilia (currency of Sicily). The amount is - 650 *carlins*, and it was converted into *lliura barcelonina*.

FIGURE A2. SUMMARY OF ALL TRADE AGENTS RELATED TO TORRALBA’S COMPANY



ANNEX 2. THE INTERFACE OF THE DATABASE, FENIX²³



²³ The database is of private use by the Medieval and Post-medieval Archeology Research Group at the University of Barcelona (GRAMP-Med)