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Trakya University
Faculty of Economics and Administrative Sciences, Turkey

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Phone:+90 (312) 253 55 55 Fax: +90 (312) 253 55 58
Email: bilgi@kgk.gov.tr

BEFORE PACIOLI: THE USE OF DOUBLE-ENTRY ACCOUNTING METHOD IN THE MEDITERRANEAN AREA IN THE LOW MIDDLE AGES

Paola Nardone
University of Chieti, Italy
nardone@unich.it
(Corresponding Author)
Ada Di Nucci
University of Chieti, Italy
adadinucci@libero.it

Abstract

The basics of double entry method are to be found in Medieval Italian Renaissance (low middle ages) a period full of economic and social transformations.

The rise of capitalism was marked by a significant growth of business activity and from the increase of trade flows towards larger geographical areas. This put to the attention of the merchant a series of complex and articulate issues. The capitalist enterprise emerged and with it the accounting technique. The accounting technique was an tool essential to control the mercantile activity, which was mainly engaged with commercial and financial operations.

The paper aims at analyzing the diffusion of double-entry method in Europe before Pacioli's age. The case study will be based on the major accounting books of Caboga, a noble family of Ragusa (Dubrovnik), particularly the accounting books of the trading company of Luka and Nikola brothers, between 1417 and 1437.

This company made trading activities in Serbia, Bosnia and in the major Italian cities. The accounting books of Caboga´s brothers show that in the Slavia's lands the double-entry method was largerly in use already at the beginning of XV century, 50 years before Benedetto Cotrugli drafted his work. The accounting books of the Caboga´s brothers contains elements characteristic of "Italian method", especially the connection between the Journal and the Ledger, method taught in the schools of accounting in Venice only at the beginning of XVI century. This shows convincingly the high technical knowledge of accounting of Ragusa (Dubrovinik) merchants.

The primary sources used in the paper are the accounting books of Caboga family, preserved in the State Archive of Dubrovnik, in addition to the existing literature on the company and on the development of accounting techniques in the middle age.

Keywords: Double-Entry, Low Middle Age, Dubrovnik.

Introduction

Tracing the history of accounting means, in a certain way, revisiting the pathway of the civilization as the numerous forms of accounting arose and developed in relation to the needs to know what was possessed, the amount of money owed and to be received by other people. The history of accounting has always been related to the history of figures and this is, under many angles, confused with the history of writing.

The book entry depicts the economy and is the only true and faithful mirror of reality, the only one able to penetrate "into the interior of a business house" (Luzzato, 1932). Therefore, the business reality is the true fact, the experience underwent, the indelible memory of the history of the company (Croce, 1942).

As most of the events related to the economic field, the accounting records have with time undergone a gradual evolution and have been refined through a slow process closely connected to the development of the economic system. At each financial change, there have been changes in the book-entry methods.

Starting from the classification suggested for the first time by Federico Melis in 1955 four main steps of this evolution process can be identified. The first phase is between the origins and 1202, in this year Leonardo Fibonacci realized the *Liber Abaci*; this phase was initially characterized by calculations under forms of materials such as sticks, notches or knots; later, following the diffusion of writing, it was characterized by pictorgraphic figures, cuneiform blocks, papyrus and scrolls which have brought down to us the evidence related to the keeping of accounts.

In the second phase that goes between 1202 and 1494, when the treatise of Luca Pacioli was published, the foundations for modern calculation were laid through the elaboration and spread of the double-entry accounting methods in Italy and Europe. The publication of *Summa* gave great importance to bookkeeping and from this moment a long period of reporting documentation began. The third phase ended in 1840: in this period several accounting textbooks were published which in turn tried to meet the accounting needs of the evolving economic reality in Europe.

The fourth and final phase coincided with the economic development in Europe during the 19th century which was related to the diffusion of industrialization, and it was characterized by the growth of scientific accountancy, whose essential requirements were underlined by Fabio Besta. The change in the corporate structure, related to the second industrial revolution, brought his student Gino Zappa to elaborate a new discipline known as Business Economics.

This paper intends to focus on the second phase of the history of accounting. In particular in Section 1 the evolution of the theory of accounting in the 15th century is reviewed, marked by the rise of capitalism and by the record system in double-entry accounting directly related to the corporate "man Kapitalismus kann nicht ohne doppelte buchhaltung denken" (Sombart, 1924), while in section 2 the scenario of research is drawn attention to the socio-economic context of the Republic of Ragusa in the 15th century. Section 3 displays the specific case: accounting in the company of the Caboga brothers of Ragusa. The conclusions are to be found in section 4.

1. The Rise of Capitalism and Development of the Accounting Methods in the 15th Century

The evolution of the accounting method in the low Middle Ages represented the solution for a whole series of events which occurred from the 12th century. Firstly, the intensification of the trade traffics and the relative development of the communication routes in the Mediterranean increasingly open to the contact between the Christians and Muslims. Secondly, the slow emergence of the monetary economy in Europe where the bartering was gradually replaced by the use of money (Bloch, 1981). This led to new needs: the knowledge of weight, measures and currency used in the other countries, and furthermore, the trade calculations set by exchanges which required refined accounting methods (Berti, 2009).

It is precisely in the use of currency that the trading activity researches its origins. Using money helped exchanges become much easier, trades increased enormously and propagated until they became indispensable not only for the single individuals but also for the

republics and empires. A specialized activity was required for their complexity: the merchants began to exert profit-making business (Schumpeter, 1959).

This is particularly evident in the manuals called "practices of trading", beginning from the most ancient, the *Liber Abaci* by Leonardo Fibonacci (1202) to the treatises of the 15th century (Meuvret, 1953; Sapori, 1972; Lopez, 1981) where the section dedicated to the trade calculations became increasingly important (Melis, 1972). An example is the work of Benedetto Cotrugli (or Kotrulievic) *Della mercatura e del mercante perfetto* which had already treated the accountancy using the double-entry bookkeeping in 1458.

The important economic, political and social changes in the 15th century occurred in the former centuries had an important influence on the development of the trade activities, laying the foundation for an expansion of their activity. The "sense of trading", or "noble sense of trading" (Novalis, 1957), how it was later described, began to emerge. The ambitions to economy growth were beginning to overcome the religious and moral influences the theologians of the Middle Ages restrained. Indeed, they considered these goods as means of life, they were supposed to be made with moderation and earned with sacrifice. Working to gain riches was considered a sin. Therefore, production was necessary and honourable; trade was necessary but dangerous; finance was considered as immoral and villain mainly due to loan charged by interest rates.

The new "capitalist" mindset arising from the development of the monetary economy would legitimize ever more profits: work to gather money and enjoy land possessions. The spirit of enterprise and rational management of economic activities were exalted (Weber, 1945). This drive for change also involved many merchants and Catholic bankers who gave lavished alms, donations and legacies in favour of religious authorities to overcome the numerous problems of conscience for the activities carried out.

The thrust towards change was certainly due to the development of trade credit, that is, the possibility to employ in trade activities not only own capital but also that of the others. The origins of the first banks gave the merchants the actual opportunity to increase their turnover (De Simone, 2002; Le Goff, 1977). The availability of cash and the possibility not to circulate uselessly thanks to the diffusion of registered bonds, such as bills of exchange (De Roover, 1953) and the certificate of credits (Bianchini, 1839) allowed and greatly encouraged the passage from shop to company (De Simone, 2002).

New economic structures were arisen, the *commende* (which gave birth to the present limited partnerships) used for marine trade, and the *compagnie* (unlimited partnerships) for land trade. Both provided with capital and means suited to operate in different trade markets, and at the same time to deal with various types of products and make profits.

With the rise of capitalism and the resulting increase of capital available to the company it became necessary for the entrepreneur to have tools which allowed him to check the total amount of capital and changes (Pierucci, 2009).

The company was depicted as an independent legal entity. It would become part of the economic circuit with an initial debt towards the capitalists which, once exhausted the corporate purpose, would reimburse the amount of money contributed and any eventual profits.

The capital account, (usually identified with the word "lump sum"), was established, it represented the debt the company had towards its shareholders. It is exactly the presence of this account that indicates a further step ahead in the evolution of the accounting practice. The distinction between the assets of the shareholders and the firm was sharper, which had already emerged in the past in the household account for furnishings. The "surplus and deficits" accounts, also called "profits and losses" were closely related to the capital account and therefore, to the shareholders of the company: they had to be divided among the shareholders. Gains and losses which occurred in the company were reported, at first, in the portion of accounts payable to shareholders. The use of an income statement summary made it possible to calculate the result of the management operation. At this point the development of the accounting today, which culminated in a systematic and rational system of accounts known as, *tout court* double-entry bookkeeping could be definitively considered as accomplished (Pierucci, 2009).

1.1 Double-Entry Method and the Capitalist Enterprise: The Connection According to the Scholars of the History of Bookkeeping

The first great scholar to coin the term capitalism and indicate how unbreakable the bond between the capitalist corporate and double entry was Werner Sombart (1924) in his work "*Der moderne Kapitalismus*"; this thesis had ignited among the scholars of accounting, from the second half of the 20th century, a lively debate confirming or denying this link.

The observations made by Federico Melis (1950) in his most significant work "*History of accounting* ", fully embracing Sombart's thought, exceeded a formal analysis of the method of recording double-entry accounting, focused on the division of the "debt" or "credit" entry, reference to the counterparts or single currency, to arrive at the same significant vision. On Melis behalf the two sets of accounts, opened on one side to the assets and on the other, instead, to the derivative elements, as well as the constant equality between the debts and credits, characterized the accounting method and enslaving it entirely to the requirements of the capitalist enterprise. The connection between the double-entry account and modern business company was, therefore, inseparable, indeed the thesis elaborated by Sombart was reinforced by substantial argumentative and documented contributions through which Melis (1991) "considered the accounting as evidence that it alone could issue the advance of capitalism". As to Melis (1962) there was a "one-to-one correspondence: that is, the company was to be considered a capitalist enterprise if there was double-entry accounting; and vice versa, the double-entry had to be adopted if the company was a capitalist enterprise".

Wasaburo Kimura (1975) was against this 'informal' concept of the double-entry accounting. He believed that "absolutely the essential character of double-entry is only a form of recording and reckoning" and refused any attempts to try to explain the being of this system "in terms of economic meaning such as property, capital, profit and loss". The English scholar Basil S. Yamey (1949) proposed in his writings breaching the connection between the accounting system and capitalism which Sombart had shown. However, he initially carried out an analysis, which resulted to be cleary insufficient, of the method as it was closely limited to the accounting doctrine and therefore addressed to the theoreticians thoughts and accounting treatises.

Thereafter, Yamey (1975) tried to reappraise Melis's thesis (1950). This was based upon three cornerstones: the registration of the accounts made expressively and issued in the name of the capitalist entrepreneur; the credit (or debt) and the vocabulary surplus (or deficits). According to Melis, the capital accounts in the opening and execution stages and in the principles of operating, responded fully to the principles of capitalism. They enhanced the supremacy of the capital and therefore of the capitalists, the concern of earnings on behalf of the company, the dissociation of the capital from work, "it outlined the strong personality of the individual; it revealed the conception of quantity of all the events in the company; it reflected the economic rationalism".

From Yamey's point of view, instead, the double-entry accounting could only have rendered rules for the ordinary administration of the enterprise, it was of no help to the capitalist entrepreneur as he had to move by nature "into the dark or the unknown" trying or exploring "new products, process, methods or new markets" (Yamey, 1962). Therefore, the double-entry accounting system had brought only an insignificant and poor contribution to capitalism, as this method was no longer appropriate for the development of the rudimental single-entry accounting. Moreover, Yamey argued that being aware of the global profits of a company was not necessary and useful for the decisions to be undertaken time by time by the entrepreneur. More accurate calculations of the profits and changes of the consistence of the assets of the company could have been obtained independently from the type of the accounting system, through inventory and balance. Yamey argued that the double-entry accounting method was of no importance to the company for the accounting control of the branches, agents, workers, commissioners, working far from the head office: "it does not coerce the factor to act honestly and efficiently or to enter his transactions honestly and accurately" (Yamey, 1975). These statements were immediately disputed by F.C. Lane (1977), highlighting in his studies, contrarily, that the break even of the delivery and merchandise accounting by the trade agent, facilitated the integration and therefore the control of the accounts used by the entrepreneur. Furthermore, defending the non-formalist interpretation from the attacks of Yamey, he stated that: "more trade called for better business management, better business management was a factor in increasing trade". Basically he went beyond Melis's point of view stating that the application of the rationality of the account to the economic effect had expressed all its innovative drive in the first phase of the capitalism, when it was introduced in the accounting system of the business companies. Once the double-entry theory was made known it was regularly applied also in smaller business companies, while the growth of the companies had taken on such scales that only the use of sophisticated calculation and analysis instruments would have been able to lead and guide them towards further progress.

The debate concerning the rationality of accounting and double-entry system started gradually moving towards the irrationality of capitalism, speculation and risks, differently from the rationality of the market where entrepreneurs (capitalists) took action while dominated by impulses deriving from human nature. Fernand Braudel (1981) questioned himself whether Sombart (1925), in the last phase of his studies, was not tempted by this perspective. This prospective did not include the spirit of capitalism, a way of thinking and behaviour of an effective entrepreneur. The analysis Braudel (1979) made on the rationality of capitalism was that it was a "continuous adaptation of means to the aims an intelligent calculation of probabilities."

2. Scenario of Research

2.1 The Republic of Ragusa in the 15th Century and the Work of Benedetto Cotrugli

A brief overview of the economic life of the Republic of Ragusa is given to us by the lecture of the accounting manuals by Benedetto Cotrugli, which summarizes the conditions of the growth reached by the city in the 15th century when taking into account the figure of the merchant.

This period had represented for the small state a flourishing period, the centre of trade between east and west, the most engaged trade port along the Dalmatian coast (Delumeau, 1970). In 1410 the city proclaimed itself independent, and throughout the course of the 1500s, Dalmatia, which was protected by Saint Biagio, reached its greatest splendour (Palumbo, 1987). It became an influent cultural and artistic centre earning the name of "Dalmatian Athens." Its merchant fleet was among the most important in the world (Dell'Osa, 2010; Braudel, 1986; Tadić, 1962), and its well-known excellent ships held the leading position in sailing east Mediterranean, assuming hence the role of "carters of the sea" (Tadić, 1962).

And it is exactly in this period that the art of trading enhances, which is not to be confused with "little traffic and short period" (Cotrugli, 1990) identified in buying in a fair and selling in another: but trading was a virtual activity and greatly beneficial. It was elevated by Cotrugli to "glorious industry, indispensable decoration of the city, comfortable art and absolutely necessary to humankind". Through trade he summarized the effervescent commerce in the Republic, but regretted the fact that the merchants in Dubrovnik were no longer "fond" of art as in the past, as they grew wealthier and became arrogant.

In fact the political-economic power achieved by the city was so great that it enabled to oppose the overbearing rule of Venice on the Adriatic Sea, and it re-named itself the "gulf of Venice". From 1420 to 1452 the Serenissma, in order to reassert its monopoly on the maritime trade, tried to hinder the Adriatic trade traffic in every way, issuing a series of by-laws to direct the fleet from East, particularly from Zara, Split and Kotor in its port, (Foretić, 1980). Dubrovnik refused to be intimidated and due to its maritime fleet and the political relations with several cities on the Adriatic Coast belonging to both the Kingdom of Naples and the Papal States, it succeeded in intensifying the trade relations to the detriment of the trade market in Venice (Asthor, 1971). In addition, the city was intensively active when promoting trade development with the East Ottoman Empire. In 1442 following several events, the city obtained from the Turk Sultan a solemn diploma through which the traders in Dubrovnik were guaranteed free trade "by sea and by land without any hindrance in Anatolia, Romania, Bulgaria, Valachia, Serbia, Bosnia and in all the other places, lands and cities under my dominion "(Spremić, 2006). This protection was essential because the merchants could trade in the state of Turkey without fear of being hit by collective vengeance, even in the event that the Sultan had declared war on any country of the East or the West (Stojanović, 1934; Jorga, 1989; Gelicich, Thallòczy, 1986).

Finally, through the concession of special Papal permits the inhabitants of Dubrovnik built more or less regular relationships with Egypt and Syria where, in order to better exploit the limits imposed by the Pope to this trade, they would send ships of maximum tonnage (Krekić, 1961).

Dubrovnik quivered when in 1453 Constantinople was conquered by the Ottomans: the fear of the invasion of the Turks increased in the Christian Europe. Sultan Mehmed II had imprisoned all the merchants of Dubrovnik but through a skilled diplomatic policy, the city obtained a further licence for privileged trades (Jorga, 1989).

Finally, with the occupation of Bosnia almost all the Christian states of the Balkans had disappeared and there began a new era in which the relations with the Turks became of primary importance for its economy.

The events of the trade of Dubrovnik are quite evident in the work of Cotrugli, the historical events and the unpredictability of trade subjected gave the merchant to continuing uncertainties. In the 15th century the reduced availability of background information, such as the evolution of the market trade, prices, demand and offer, would bring sudden and severe market fluctuations. A war, an infringed trade agreement, a failure would be sufficient to overturn a considerable fortune. The activity of a tradesman would underlay to the uncertainty which could not be bypassed neither from education nor from practice. For this reason

Cotrugli would deal with the importance of fortune in the trades area. Savary (1675) did the same: he admitted that diligence, talent, good conduct of business and prudence "si tout cela n'est accompagnè du bonheur et de la fortune". Not only were the limits of human activity recognized to the good fate, but at the same time also the freedom of the merchants trading within these limits (Bec, 1984). Finally, with more certainty resulting from the stable political situation in Dubrovnik it somehow reduced the role. He argued indeed that the fate favoured more who ruled with prudence and reasoning, without drawing rules of conduct from the cases where the opposite happened.

Another particularity regarding the art of trading underlined by Cotrugli was that it could not be accessible to everyone, there were people skilled to exercise it and other who were unable. This distinction traced out the static vision of the city which existed in that historical moment with a strict division of tasks and functions. The people unable to be tradesmen, that is, with no capacity to contract were the women and the "rurals", next there was a category of people deemed "unlawful": kings, princes, nobles and clergymen. This illegitimacy was imposed by the Church which prohibited that the above people mentioned be tradesmen as the professions which tend to gain more money were considered not so respectful.

Actually Cotrugli intended to rail against the nobles and release the figure of the tradesmen which, in his opinion, stood out in comparison to the gentleman. Taking as example the patricians of Dubrovnik Cotrugli stated that the tradesmen could become wealthy with their activity and therefore gain respect in the society while, on the other hand, the gentlemen would dissolve all their money. There was an even further difference if considering the ecclesiastics who lived of income and who were not use of handling money and therefore would usually not meet the deadlines, delaying their fulfilment in their financial obligations. Hence, from here the thought that tradesmen honoured their word exactly like the troops. The social function of the merchant was definitely enhanced, a sign of this fact is that during the 15th century, trade or "the transfer of goods from place to place, buying conveniently and selling where they are worth more" was recognized as a worthy activity that the head of the household could exercise to satisfy the needs of his family (Palmieri, 1982).

2.2 The Development of Silver Trade in Dubrovnik

The trades in Dubrovnik were centred around the harbour. This was, for the city, a primary importance and the government placed special attention to its protection, safety, organization and finance (Krekić, 1988).

The main trade in the port was not destined to local consumption, but exclusively to the transit and storage (de Diversis, 1882). The exchanges were goods but also services related to the sea (Tadić, 1962).

Craftsmen and manufactured products from West Europe were imported to the inlands, whereas livestock products were mainly exported. From the last decades of the 14th century during the development of the monetary economy increasing quantities of precious metals have been dealt with. Production of silver in mines in Central Europe were undergoing a progressive decrease and in the same time there was an increase in demand in all the European trade markets. Dubrovnik was able to meet the demands thanks to the large mining area in Bosnia and Serbia.

A series of profitable trades began with other inland Balkan cities and with their natural resources they became an important base for a rich trade.

An increasing number of colonies of merchants in Dubrovnik were reinforcing through the flourishing mining activity in these regions. In a short time they were able to operate in these territories where the wealthiest tradesmen financed the mining activity directly, either individually or as a company, by usually purchasing shares of ownership of the silver mines (Cirković, 1990). Along with these investments other forms of making profits were carried out, in some cases the contract of the duty paid on the mines and markets were bought. This gave the possibility to collect further taxes with the same description to originate other forms of similar activities such as the processing of metals levied as taxes and the organization of mint production (Cirković, 1990).

In the second half of the 15th century the mining centres in the Balkans were represented mainly by traders from Dubrovnik and from the areas of Novo Brdo, Trepca, Rudnik and Srebrenica (Kovačević-Kojić, 1978). There were 3,600 merchants from Dubrovnik in the sole area of Srebrenica in the period between 1415 and 1436.

The tradesmen were attracted by the great amount of silver available on the mining market, but they were also interested in the numerous privileges and concessions agreed with by the local government: starting from a privileged legal autonomy to the possibility of using their currency as the main form of payment. In addition, they could freely exercise their Catholic religion cult in an orthodox country; while the payment of the duty, proof of which was a mark placed on the metal, was the only form of restrictive policy towards the exportation of silver on behalf of the Bosnian and Serbian governments.

On the subject of the export of silver to Italy in the first half of the 15th century there were many dissenting estimates. According to the estimates given by Tadić, the quantity of silver exported every year by approximately forty trade companies from Dubrovnik was 25,000 kilograms (Kovacević-Kojić, 1978), while far below appeared to be that exported from S. Circović, approximately 5,672 kilograms (Kovacević-Kojić, 1978). This latter amount of silver was exported with permission from the territory and reason for editing the "*Quaderno deli mercadanti de la Checa*" in 1422. However, in this source there is no mention and therefore any consideration of both the quantity of silver exported to Venice, for which there was an obligation of payment to the Mint of Dubrovnik equal to 6% of the quantities exported (Pierucci, 2000; Dinić, 1976), and the amount of silver subject to smuggling. This occurrence is of particular importance for the Dalmatian coast especially in reference to trades in Naples and L'Aquila.

The Dubrovnik merchants in Bosnia and Serbia exported silver to the main Italian trade markets and had set up an organization structuring "new" business companies, the so called "compagnie" or "societas mercatorum", which are the current limited partnerships (Galgano, 2001). They frequently bore the name of "fraterne", given that the partners belong to the same family. The risks and shares were divided according to the paid-up capitals among the "compagni" of the trade companies (Spremić, 1976).

In witness of this there are several books of account belonging to numerous Dalmatian business companies preserved in the State Archive of Dubrovnik. The most important books of accounting belong to the Caboga, Nichola and Lucha brothers.

3. The Case of "The Caboga Brothers Family-Run Business"

3.1 The Use of the Double-Entry Accounting Method in the Caboga Family-Run Business

Nichola and Lucha Caboga belonged to a noble family in Dubrovnik, one of the most recognized and active family in the public life of the city (in the 14th century it was one of the

most important 34 families of the Republic). Nichola was the legitimate son of Junija Caboga, while Lucha was the natural son.

This diversity influenced the life of the brothers in a decisive way significantly: Nichola could exercise duties of public offices and was actively involved in the business sector while Lucha, who availed himself of his father's surname but only at a later time, was less known than his brother.

Likewise, the share assigned to the legitimate son was much higher than the one assigned to the natural son at the division of the heritable estate (H.A.D., *Testamenta Notoriae*). For this reason the capital they invested in their business company was different. Lucha had to provide for his minority share with a greater personal commitment.

The Caboga business stood for about twenty years: from 1417 to 1437 (year of death of Lucha). Silver trade was the main objective of the company while the wax trade was secondary.

Federico Melis evaluated the account books of Caboga brothers for their content and for the detailed records as far much more complete and advanced than the other books of account of other Italian business companies.

The accounting kept by the Caboga brothers in their firm is indeed a rare example of "Venetian entry method", that is, the recording of the accounts in divided and opposing sections, which was brought back in the Republic of Ragusa before Pacioli's work.

Venice was firstly recognized of the introduction of the double entry method due to the fact that the first description of this very accurate method was spread with the work of Pacioli, Summa, and published in 1494.

Actually, the Tuscany friar did not invent anything, he just exposed methodically an accounting system which was long since used in the business companies of Venice, Florence, Genova, Milan, Dubrovnik and many other cities (Luzzatto, 1995). The oldest account books which used this method are those of the "fraterne" by Soranzo in 1406. The books reveal such a great knowledge of the method that it is evident that the experience acquired in the second half of the 14th century was a long experience.

Therefore, it should not be a surprise if the merchants of various countries in the 15th century intensified the trade relations with Venice and that at times only their descendents in the city could study, entrusting them to some important business company for long trainings to understand and apply the "Venetian writing" method.

The Republic of Ragusa, for example, had a great number of Italian accountants who sided the local accountants to report the balance sheet; furthermore, in the same city, there is only one example of public accounting in the Balkans holding all the elements of the double entry method (Ridolfi, 2009): the book of accounts of the Mint dating back to 1422.

When Nichola and Lucha Caboga set up their business company in 1417 they applied from the very beginning this accounting method (Kovacević, Kojić, 1999). The date of application is significantly important as it shows that, through the influence it received from Venice, the double entry method was well-known and perfectly applicable at least forty years before the realization of the work of Cotrugli (1458) and over seventy years before the publication of Pacioli's work. This shows the existence of a local capitalism in full development if considering the thesis of Sombart binding the birth of this economic system with that of the double entry method.

Technically there are some differences between the application of the principles of the double-entry accounting methods belonging to Caboga and Cotrugli, one of the most obvious differences is the use of the preposition "per" before the credit account by the former, which is on the other hand absent in the work of the latter.

Caboga used three types of books: the Book Account or Ledger, the Journal and the Book Excerpt (also called Book of Records), (H.A.D., *Privata*). These books record the personal accounts assigned to the two brothers individually; this is a further proof of the knowledge of the double-entry method as there was the acknowledgment of the legal corporate of the firm able to "debit the account" to the owners and to "credit" it.

The Book Account was the most important for the application of the double-entry rules. This was shown in the contemporary accounting: on the left page the accounts of the debtor (debts) and on the right page the accounts of the creditor (credits). The accounts were reported in the Ledger exactly in the order they appeared in the Journal, in order that what was written in a single-entry in it would have been recorded in the Book Account separately, on the debtor's and creditor's account for the same amount.

This method allowed to make connections easily between the two accounting books (H.A.D., *Privata*). The accounts on the Book were divided according to its content, the most common were related to those assigned to the shareholders, the individual accounts, the credit and debit accounts, beneficial accounts, cash accounts, accounts of goods, travel accounts (Melis, 1977). Furthermore, there was the economic account profits and losses ("*pro e danno*"), typical of the double-entry method. If the credit account (credit) exceeded the debit account (debt) there was a profit, which was carried in debt to balance the budget and in credit in the "profits and losses" account. The Ledger was compiled in a precise and professional way, indeed the accounts were corrected in a timely manner (H.A.D., *Privata*). Therefore, you can get a quick and clear idea of the total capital of the business, investments, credit, goods, debt, demand and offer of some products, the price of the goods, the cost of transport and changes linked to market conditions.

3.2 Silver Trade and the Book Entries of the Caboga Business

The traffic trade of the company, as well as the result of accounting, was mainly based on raw materials in demand from the European market, in particular silver.

The export sales were mainly in Venice and this was for several reasons. Firstly, the Serenissima played an important role in international trade, engaging a great number of trades with the East and, like all the European cities, it was forced to pay for imported goods with silver coins, as the Eastern countries were not interested to trade with Western products. In such way, the Serenissima conveyed to itself the Balkan silver with the aim to import precious goods such as fine fabrics, perfumes and spices from the East. These goods were in strong demand in the city where the standard of living was higher than any other European city.

The second reason was related to the activity of minting money by the Mint of Venice, which coined not only the "gold ducat", but also the "big silver", which was very much used in both the domestic and international circulation (Luzzatto, 1995). The third reason concerned the industry of Venetian art which mainly developed during the 15th century. The metalworking, construction of buildings and the glassworks were essentially to embellish the Serenissima: this was also shown through the splendour and luxury of the palaces, the extraordinary economic progress that the city was experiencing. In particular, the silver was used to making jewellery, creating sculptures and enhancing the decor of the buildings. The importation of the white metal was therefore essential for Venice.

In the business organization Lucha, who was the minor associate, was assigned duties such as travel planning, purchases and selling of goods. From 1426 to 1432 the accounting books drafted by Caboga show 177 recorded travels for the export of silver to

Venice. Generally Lucha would not take part in the journeys with the fleet, but he would stay in Dubrovnik to manage and to handle commercial matters and assign the whole freight to carriers from Dubrovnik. After arriving at destination, these carriers were fully responsible for the silver delivery to the Venetian purchasers. It could happen that several merchants could travel together with other merchants who employed the same carriers: this fact allowed to share the expenses for the travel and the risks related to travelling through the Adriatic Sea.

The accounting books by the Caboga brothers show a delayed appeal to the maritime insurance companies: this reveals the typology of agreement present in Venice compared to Genoa or Florence, where this kind of agreement was well-known, but it also shows the feeling of trust in the merchant fleet of Dubrovnik which was supplied with arms against the pirates along the travelling. Lastly, the merchants of the Late Middle Ages believed in the Fate (Cotrugli): the insurance agreement was considered as mistrust towards a supernatural protection.

In the Republic of Dubrovnik the distinction between the insured and the insurers was rather difficult, since the roles were complementary to each other (Tenenti, 1985). Both merchants and ship owners needed to be insured, however they were also able to perform duties as an insurance company.

At the beginning, the Caboga brothers decided not to draft an insurance agreement for the fleet travelling to Venice; later on they chose to appeal to maritime insurance companies, by paying a 2%-premium of the value for the insured silver.

The accounting of the silver was recorded based on where it came from. An account was set for the silver (*plicho*) mainly extracted in mines located in the central part of Bosnia and another account set for the silver coming from the mine of Srebrenica in Serbia. Other accounts referred to the white silver and, sometimes, to the fine silver, that is the wrought silver; other accounts were for the gilded silver (*glama*) from the mines in Novo Brdo and Janjevo.

In the accounting books the rates of gold for each delivery of the *glama* silver were set: on the average the percentage was 25% for each litre. Therefore, the price for the *glama* silver was classified into a price for white silver metal and a certain other price for gold. Information about the fine gold was rarely to be found because the Caboga brothers did not often ship ingots; however, when this would happen, three types of gold were recorded: plain gold, fine gold and 23-carate gold.

These accounting books deliver a global picture regarding the importance of the Serbian silver and gold in the European market and in the trade of high-valued metals. Hence, it can be deducted that in the 15th century the Serbian economy was mainly focused on these metals and their trade.

An example: between December 1426 and November 1432 the Caboga company purchased in Serbia 10,613 litres of silver (3,480 kilograms) for a total amount of 100,000 ducats, while it purchased only 200 kilograms in Bosnia.

As for the exported silver, only 565 kilograms of *glama* silver was shipped, for a total amount of 38,247 ducats, this means there was 141 kilograms of gold. The Caboga brothers had their own suppliers for the delivery. In this case they protected themselves from theft and the suppliers turned to be insurers, by receiving a 2%- premium on the value of the shipped metal.

Once the metal was shipped to Dubrovnik from Bosnia and Serbia, it was immediately loaded onto the ships by several merchants who were in charge for the transport. The silver (93%) was shipped to Italy, in particular 88% of it was shipped to Venice and recorded in an account called *Viago di Venesia* (travel to Venice), while a small amount of it was shipped to Fermo (*Viago di Fermo*), via the Adriatic Coast of the Papal State.

The city of Dubrovnik imposed an excise duty on the export (Pierucci, 2000). The merchants from Dubrovnik had to pay between 0,30 and 0,50-percentage rate on the total amount of metal to be exported and mandatorily delivered to the city. They did not pay money, but they had to deliver the raw material to the authorities in order to mint coins. The Mint of Dubrovnik was therefore facilitated to supply silver to mint coins such as *perperi* and *grossi*. The excise had been imposed from 1424 (H.A.D., *Acta Maioris Consilii*, 1424), while the excise was as twice as much for foreign merchants who wanted to export the metal from Dubrovnik, but they were allowed to pay the excise by delivering foreign silver coins, since these coins were used to mint the coins of Dubrovnik (Rešetar, 1924). This excise strongly hindered the silver trade in the Republic of Dubrovnik, and for this reason the Government notably changed the by-law in 1452, by exempting the foreign merchants from paying the excise and increasing the excise by 1% for the merchants from Dubrovnik. However, the merchants from Dubrovnik did not have to pay the excise with silver anymore and they could pay it with money (H.A.D., *Acta Maioris Consilii*, 1424).

The business run by Nichola and Lucha exported over than 3 tons of silver, nearly the half was *glama* silver, and about 6 kilograms of fine gold to Venice.

The accounting records referring to the silver trade were reported as it follows: in the Journal Book the first record was the purchase of metal from the suppliers: the account "silver" (cost) was charged and the account bearing the name of the supplier (debit) was accredited. Upon payment of the silver by the Caboga brothers the account of the supplier was charged (debt reduction) and the account "cash" was accredited (money reduction) (H.A.D., *Privata*). After the purchase, the metal was shipped to Venice: the account "travel to Venice" was charged (cost) and the account "silver" was accredited (cost adjustment).

When the silver was sold to merchants in Venice, the account in the name of the merchant/client was charged (credit), the account "travel to Venice" was accredited (revenue). Upon payment in cash by the merchant/client, the account "cash" was charged (money increase), while the account in the name of the merchant/client was accredited (credit reduction). However, the account "cash" was only assigned when the payment was in cash; if the payment was performed through goods, the accounts in the name of these goods were to be handled (H.A.D., *Privata*).

Lastly, the gain was the result of the balance between "credit" and "debt" of the account "travel to Venice". If the amount "credit" was higher than "debt", the gain was recorded into the account "profit and loss" and the account "profit and loss" was accredited (H.A.D., *Privata*).

The total amount of the revenue in the period 1426-1432 regarding the trade with Venice was 93,234.23 ducats (H.A.D., *Privata*, L.G.), considering that the capital amount invested by the Capoga brothers was 90,277.20 ducats to provide silver coming from the Serbian and Bosnian mines, to pay carriage costs, excises, commissions and expenses (H.A.D., *Privata*, L.G.) and they achieved a profit of 2,957.03 ducats, equal to 3,27% of the invested capital. Obviously it is an average amount because if one examines several travel records, profits equal to 6-7% but also heavy losses were registered.

On the contrary, the records referring to the gold trade show earning percentage up to 15% of the capital (H.A.D., *Privata*, L.G.).

3.3 Payment Method: From Cash to Bills of Exchange

Venetian merchants were not the only ones who had commercial connections to Venice: many foreign merchants were present as well (Luzzatto, 1995). The city of Venice drew the attention of a large number of merchants coming from all over Europe for several reasons: the city was located in the northernmost point of the Adriatic Sea, it could be easily reached by sea from the plains Pianura Padana, by the lowest crossing places in the Alpines of Central Europe and it had an influent merchant trade with every harbour in the Mediterranean Sea. Except in special cases, the merchants were not transition traders who chose Venice as a mere loading harbour. According to economic and tax policies, the city of Venice aimed at becoming an important commercial hub, a trading post, by hindering intermediation or transit connections. The government imposed on foreign merchants to exchange their goods in Venice and both risks and profits resulting from the maritime trade, especially with the East, were only for the inhabitants of Venice. There were actual merchant colonies who had decided to reside in the city, sent their traders or started up branches of their companies.

Therefore, many merchants who purchased the silver of the Caboga brothers were not from Venice, but they were only residing in Venice and even Nichola and Lucha would assign duties to agents who permanently resided in Venice and would pay a commission equal to 0,5% of the exported silver (A.S.P., *Ospedali*).

The Caboga brothers would usually accept from merchants, whom they had long-lasting commercial relations with, not only gold or silver coins as payment method, but also other kinds of goods. This method was not applied to those merchants who had occasional commercial connections with the Caboga brothers.

In particular: when Nichola and Lucha established a relationship based on trust with the merchants, it was very easy to use the bill of exchange as payment method, which is among the records of the company.

The bill of exchange could replace the cash payment. In Venice there was a number of *banchi de scripta*, where the main merchants owned their accounts. This means most of the times both payments and collections were performed through bank entries, taking into account that the entry was the amount a depositor had in his bank account.

Bank deposits as payment method created a new typology of coin, the bank money *moneta di banco*, which was equal to a specific amount of golden ducats. This new kind of payment was largely accepted when the two parties were in Venice; on the contrary, if somewhere else, this method could not be accepted. In this case the bill of exchange was the most used payment modality (Niccolini, 1936). In truth, the bill of Exchange was not only a payment method for goods which were purchased or sold far from Venice, but according to some scholars it was a credit instrument to hide "usury loans".

In the case of the city of Venice the bill of exchange was only a financial tool to pay goods. The most requested products were those coming from the East and had to be paid cash. However, merchants could not bring all the money required to effect payments, but they did not want to give up on sought-after purchases neither, only because they did not have enough cash. (Cassandro, 1955). To solve this problem they used the credit instrument called bill of exchange as payment method, which could be collected even at one of the banks situated far from Venice.

Therefore, the merchants of Venice who had accounts at the banks of the city handed in to the Caboga brothers bills of exchange: Nichola und Lucha could then collect this credit instrument at the banks of Dubrovnik and obtain the equivalent amount in cash. This method could avoid cash money to be carried out by sea.

The bill of exchange as a payment method did not count out the risk for speculations. It was not about usury, however using this form of credit significant amount of profits could be earned. The profits were the results of the exchange variation between the date and the place where the bills was drawn and issued (De Roover, 1949).

The bill of exchange was firstly recorded on the Journal Book, followed by two record operations on the Account Book, in the account "debit" and "credit". The records analysis allows to trace the pathway of the bill of exchange and the positions held by the Caboga brothers.

4. Discussion and Conclusion

The economy of the Republic of Dubrovnik developed flourishingly in the 15th century, and Dubrovnik became one of the most influent commercial hubs in the Mediterranean area where a significant growth of the individual wealth is to be observed.

The analysis on the main financial traders at that time, through the work carried out by Cotrugli and the documents of the Caboga brothers, shows that the spiritual and civil background where merchants performed their tasks was changing and that background seemed to be overcoming the hurdles set by a society which comprised a small number of citizens and strictly divided into social classes (Krekić, 1976).

The merchants from Dubrovnik, especially the Caboga brothers, would perform their activity, without asking whether or not it was legal and whether or not they were supported by God. The important factor was "to purchase with honour" (Cotrugli, 1990).

A clear example has been delivered through the change of feeling for the sin of usury, which at the beginning was referred to any financial operation, while during the 15th century it was limited to the loan charged with an interest rate. The documents dated back to the 15th century show that the legacies due to usury (*mala ablata incerta)* were numerous, but they consisted of "small dimensions", often they were simply symbolic. This provides evidence about both the increasing self-confidence felt by the merchants by performing their bargains and assuming that if they had, at the end, regretted, their conscience would not have felt any kind of shame, and the feeling for the merchant to be able to perform the job with more advantages, which was until then ruled by a moral law contrasting with the real life.

This provides evidence about both the increasing self-confidence felt by the merchants by performing their business and assuming that if they had had at the end any regret their conscience would not have undergone any kind of shame, and the self-confident feeling the merchant had to exercise and perform a job full of advantages, which was until then ruled by a moral law contrasting with the real life.

The accounting of the Caboga brothers, who belonged to the category of the "big" merchants (Cotrugli, 1990), represents this change: rationalizing methods to achieve profits, increasing their turnover and the dimensions of the company through the collection of significant riches (Jeannin, 1957) and often replacing cash to bills of exchange, advantaging the transfer of great quantity of money, but also hiding usury loans.

Therefore, the Caboga brothers experienced this transitional phase, from trade calculations (Melis, 1940) according to which entries were only used to follow the movement of money, credits and debits, to a more complete accounting system which allowed to decrease "legacy facts" where management was objectified. The accounting books by the Caboga brothers clearly shows the notions about the heritage management, which the accountants at that time were working on, but no written drafts are to be found for posterity (Melis, 1950).

Hence, this is a period when the company/practice had the supremacy on the school/

theory: the fundamentals of the double-entry accounting system were applied, without consulting any accounting textbooks.

Until the 16th century no accounting textbooks had been drafted: after this period theories regarding accounts and entry methods were carried out. Finally, the fracture occurred: from accounting notions, acquired and developed by Italian accountants from the 13th and 15th century, orally divulgated, to the first treatises which lacked of these notions.

This resulted into the inevitable fracture between accounting theories and the tangible regulations regarding heritage management which had been still learned in practice from the *fondaco*, the institution that combined the functions of warehouse, customs office, market and inn for the traders. As a matter of fact, Pacioli's work divulgated the double-entry accounting system and this led to the development of the accounting entry method during the Renaissance, while the subject of it was still ignored, since no researches were carried out regarding property management and development (Masi, 1975).

The fracture between accounting theory and tangible accounting was increasingly marked when the first accounting textbooks were published.

However, this transition should not diminish the significance of Pacioli's work, since it found a large approval everywhere. Indeed, his work shed some light onto the interesting knowledge of social life ("la luce in un ramo dello scibile"), since the focus was on practice and tradition until then, by embarking a rational and systematic approach on the accounting science and by making its implementation less varying and brighter. Pacioli's *Summa* made the double-entry bookkeeping method well known throughout the world (Lucchini, 1990).

The last observation concerns the city of Dubrovnik: these methods, as the Caboga brothers showed, were known and implemented before accounting textbooks had been published. Unfortunately Dubrovnik was not able to take advantages from the intense network built by the merchants, since the city did not create important commercial and financial institutions, unlike it occurred in Italy (Spremić, 1976): this fact nullified in a certain way the role that had been played by the financial traders as trade pioneers.

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