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Adoption and diffusion of double entry book-keeping in Mexico and Spain: A related but under-investigated development

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ABSTRACT

There is a consensus within Mexican accounting historiography regarding widespread use of double entry bookkeeping by the end of the 19th Century in the realm of both private and public enterprise. However, there is conflicting and even contradictory claims as to when exactly this technique arrived to the viceroyalty of New Spain (present day Mexico) as well as its diffusion during the colonial era. In this article we address this conflict while putting forward the idea that the history of ‘modern’ accounting practice in Latin America should be framed by developments in its former colonial power. We offer the analysis of primary and secondary source material to support the view that there was continuity in the use of double entry in Spain and therefore, the so called ‘period of silence and apparent oblivion’ seems limited to the production of indigenous accounting thought (as expressed in the production of bibliographic material such as manuals and textbooks). We conclude that the history of Latin America accounting should be wary of extrapolating everyday practice by interpreting bibliographic material and proceed by examining surviving company documents as well as informal educational practices amongst organisations based in the metropolis and its then colonies.

Key words: double entry, diffusion of accounting systems, knowledge transfer, Mexico (New Spain), Spain

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INTRODUCTION

Research in this article aims to enhance the understanding of the use and diffusion of ‘modern’ accounting techniques outside of Europe and North America by comparing and contrasting practices in the American colonies with those in the Spanish metropolis. This as there are but a handful of contributions exploring accounting practices in former Spanish colonies in America before and after their independence (Donoso, A., 1996 and 1997; Klein and TePaske, 1986 and 1988; Larruga, 1794; Maniau, 1793; Núñez Torrado, 2002; Rivarola, 2008; TePaske *et al.*, 1976; TePaske *et al.*, 1982-1990). We argue that developments in Latin America should not be studied in isolation but as an educational process in which the transfer of knowledge is mapped while considering accounting practice and accounting thought in the metropolis.

We focus on developments in the viceroyalty of New Spain, a territory whose location, extension and wealth usually positioned it as a geo-strategic priority for both the Spanish Crown and Spanish merchant houses. Most of this geography became a sovereign state after a process of independence which started in 1810. Since 1917 this republic has been formally known as United Mexican States (*Estados Unidos Mexicanos* henceforward Mexico).¹ We revisit the handful of indigenous studies dealing with the arrival and diffusion of double entry bookkeeping in Mexico. These studies date primarily to the 1950s and offer conflicting evidence as to when and where that accounting technique became common practice within private and public enterprise in the former Spanish colony before and after the war of independence.

We then illustrate how the use of that technique within the Spanish metropolis helps to better understand some of the sources of conflict in Mexican historiography. This exercise involves revisiting the consensus about the evolution of ‘modern’ accounting in Spain. Specifically we offer new evidence regarding the period that Rafael Donoso (1996) and Esteban Hernández-Esteve (1996a) call ‘stage of silence and apparent oblivion’, a period which oscillates between the end of 17th Century and beginnings of 18th Century. As its name suggests, it claims that double entry bookkeeping was ‘abandoned’ or at least ‘forgotten’ as far as the production of didactic texts was concerned. Yet our evidence suggests it was very much alive in the every-day practice of business organisations based in key geographies of economic activity in the Spanish mainland.

The remainder of this article proceeds as follows: section two offers a survey and a reinterpretation of contributions published in Mexico. These contributions claim that private and public bodies in that country adopted double entry bookkeeping in the 19th Century and only after independence from Spain. The third section summarizes established views regarding the introduction and diffusion of that accounting technique in Spain. This helps ascertaining its use in the colonial metropolis before and after Mexican independence. Section four looks at accounting practice in Spanish firms emerging from primary records and detailing the use of double entry bookkeeping in private organizations based in Madrid and Barcelona circa 1690s and 1800s. The aim here is addressing the possibilities of knowledge transfer amongst private companies across the Atlantic during the colonial era. The fifth section looks at the context and rationale behind the first attempt to introduce the double entry method in the public management of colonial institutions. In other words, it looks in detail at accounting guidelines introduced during Borbonic reforms in order to identify its influence on colonial and postcolonial accounting practice in Mexico. The sixth and last section offers a discussion and conclusions. Here we claim that the future for the study of the history of accounting in Latin America will emerge from a synthesis based in contrasting contemporary accounting practices (as reflected in surviving documents of public and private organisations), trade regulation, contemporary manuals and treaties as well as informal education practices (such as apprenticeships and visiting stays).

ADOPTION AND DIFFUSION OF DOUBLE ENTRY BOOKKEEPING IN MEXICO

Studies claiming widespread use of double entry only after 1850

Table 1 summarizes contributions by Mexican authors published in professional and academic forums and dealing with the adoption of double entry bookkeeping in Mexico. Two of these date to the colonial period while most of them date to the second half of 20th Century. A 'bird's eye view' seems to predominate, that is, studies which offer a broad and rather general overview of the development of accounting methods in capitalist societies (with a bias towards developments in Western Europe and North America). A common thread is their didactic nature and text book roots. Most of these contributions progressed using secondary source material. Lack of research based on surviving company records thus resulted in the perpetuation of myths, errors, omissions and misunderstandings; particularly regarding the arrival and diffusion of double entry

bookkeeping. The small quantity of systematic studies also reflects a lack of a research program around the history of accounting within Mexican educational institutions.² Indeed, surveys on the diffusion of accounting history as a research agenda have failed to report any critical mass of activity in Mexico (Carnegie and Rodriguez, 2007; Mattessich, 2003 and 2007) while others point to the dearth of any substantive effort for the whole of Latin America (Carmona, 2004).

It is possible that Table 1 is not fully inclusive. Due to the scarcity of systematic studies in Mexican accounting history it is possible (if not probable) that there are dissertations and other published and unpublished contributions that might be of relevance. However, no other relevant item was identified within the digital catalogues of the largest public and private universities.³ At the same time, there are citations within the publications summarised in Table 1, to other studies (mainly dissertations) that in all cases have not survived or have not been catalogued by the largest Mexican universities. We thus proceed under the assumption that Table 1 contains the totality of empirical studies by Mexican authors dealing with the adoption and diffusion of ‘modern’ accounting techniques during the colonial and post-colonial eras.

A recurrent theme within the studies summarized in Table 1, is a debate regarding the adoption and first use of double entry bookkeeping in Mexico. For instance, Gallo (1957: 51) criticises the view stated by ‘Alfredo Chavero, Esq., C.P.A.’⁴ in the latter’s newspaper article published in *El Universal* (June 7th 1957). Chavero claims that ‘university lectures’ in the 1900s taught single entry bookkeeping and dates widespread use of double entry bookkeeping to the late 19th and early 20th centuries. This was consistent with common wisdom beliefs which dated the start of professional accounting in Mexico to two key developments, namely, first, the creation of a business accounting degree (*Contador de comercio*) in 1905, whose first graduate in 1907, Fernando Díez Barroso, was instrumental in changing the title of graduates to Certified Public Accountant; and second, the establishment of the Mexican Association of Accountants in 1917 (four years before the American Accounting Association) (Gertz Manero, 1976: 138-9; Rodríguez Álvarez and Yáñez Morales, 1995).⁵

Chavero’s view also coincides with the publication of several ‘novel books on modern accounting’ in Mexico City as identified by Millán (2000): firstly ‘A Treatise on Double Entry Bookkeeping’ by Eduardo Jiménez de la Cuesta in 1886; secondly ‘The Theory of Double Entry

Bookkeeping’ by Antonio Orozco in 1894; and thirdly, ‘A Complex Treatise on Double Entry Bookkeeping’ by Emilio A. Marín in 1903.

In an independent move, Alvarado *et al.* (1983: 107) claims that the earliest attempt to introduce double entry bookkeeping in public bodies dates to 1784. These authors claim that 1784 is the year that marks the introduction of an unspecified piece of regulation which was enacted to institute the use the double entry method across the colonial government. They further claim that metropolitan authorities lost the ‘tough of war’ with civil servants who opposed the former’s attempts and the ‘ordinance’ was repealed three years later. Alvarado and colleagues also claim that in the decades that followed the birth of the Mexican Republic (after its independence from Spain in 1824):

‘... [accountants in public and private enterprise] continued using colonial administration standards and accounting practices, with the further difficulty that volatility in the economic environment and political situation originated confusion in public and private enterprise, loosing with it the pressures associated with day to day practice’ (Alvarado *et al.* 1983: 106).

and some 25 years after the publication of Chavero’s newspaper articles, Alvarado *et al.* (1983:107) were in agreement in dating the arrival of double entry bookkeeping to the late 19th Century.⁶ Alvarado *et al.* (1983) failed to reference Gallo (1957) as a source and hence, we were unable to determine whether they were aware of its existence. They also fail to disclose their source material and thus hard to ascertain the overall validity of their claims.

Studies claiming widespread use of double entry during the colonial era (16th to 18th centuries)

As noted above, the aim of Gallo (1957) was to refute Chavero’s claim of a ‘late’ adoption of double entry bookkeeping in Mexico. Gallo (1957: 51) offers evidence on the use of double entry bookkeeping from an *hacienda* in Guanajato. The *hacienda* was a large, autonomous, self sustaining holdings of private land typically associated with agriculture or mining. During the colonial period these grew to be the dominant productive unit and remain so until the 1930s. Some of these engaged in international trade mainly by exporting agricultural products such as natural dyes (e.g. *grana cochinilla*) or precious metals (e.g. silver). Gallo dates his evidence to 1802 and to the estate of Count Pérez Gálvez. He claims that there was extensive use of double

entry bookkeeping in the everyday trading of that *hacienda* and that this should be seen as representative of accounting practice within private businesses of the time.

Whether Gallo (1957) was right and there was widespread use of double entry in Mexico at the start of the 19th Century is not altogether clear. Any view on the matter is largely speculative in the absence of systematic studies of surviving company documents. For instance, Alvarado *et al.* (1983: 105-6) point to Manuel Payno's report to his successor as Minister of Finance (circa 1850). In this report Payno gives his opinion on the failed attempt to introduce double entry bookkeeping in the Mexican central government during his tenure (see further Anonymous, 1850). Alvarado *et al.* (1983) interpret this evidence to suggest there was wide acceptance of double entry bookkeeping within private enterprise 'otherwise [Manuel] Payno would not have moaned about the lack of skills within the public sector.' (p. 106). This view has some merit when considering Rafael Cancino's translation of Deplangue's (1843) text was printed in Mexico City in 1844. Cancino's translation (i.e. Deplangue, 1844) together with Salvador y Aznar (1852) are the oldest indigenous accounting textbooks currently on record in electronic libraries in Mexico.

One is thus led to believe that at least in the mid-19th there was intense interest in double entry accounting but unable to ascertain if that was the case fifty years or more before. In this regard García Guidot (1952) points to the same Pérez de Gálvez's *hacienda* in Guanajuato as well as the 'thriving Mexican mining sector' as examples of the widespread use of double entry bookkeeping 'at the dawn of 19th Century' (p. 17). Moreover, he uses these examples as the basis to support his argument regarding the success of having introduced that accounting technique to Mexico in the late 18th Century by the Accounting Court (*Tribunal de Cuentas*) and the General Accounting Office of the Indies (*Contaduría General de Indias*). Specifically García Guidot (1952: 16-7) dates the introduction of double entry bookkeeping to the passing and adoption of the Practice and Provisional Instruction (*Instrucción Práctica y Provisional*) from General Accounting Office of the Indies in 1874 and to the issuing of a Royal Decree (*Real Orden*) of November 26, 1787 by the Accounting Court.

The debate and a proposal for further research

The comparison between, on the one hand, Gertz Manero (1976), Alvarado *et al.* (1983), Rodríguez Álvarez and Yáñez Morales (1995); and, on the other hand, García Guidot (1952) and

Gallo (1957) suggests that double entry bookkeeping arrived in Mexico during last decades of 18th Century. This view claims that there was some initial success. But this accounting technique diffused at lukewarm pace so that it was ‘forgotten’ as a practice during the first half of 19th Century. Double entry book keeping was then reintroduced from 1850 onwards. First in some private firms as suggested by the publication of Deplangue (1844) and Salvador y Aznar (1852). This was followed by its adoption in central government thanks to the successful use within the Mexican Army (Alvarado *et al.*,1983: 107; Ejército Mexicano, 1868) and as a remnant of the French military intervention (Gertz Manero, 1976: 128). Meanwhile, foreign direct investments from USA, France and Britain during the *Porfiriato* (1876-1910) brought about widespread use within private enterprise.⁷

However, there is evidence to suggest that the studies identified above proceed in rather weak underpinnings. For one, Hernández Esteve (1989:94) notes that 150 copies of Bartolomé Salvador de Solorzano’s treaty on double entry accounting were taken by Diego Felipe de Aldino and Bartolomé Porras in 1591 to be sold in New Spain. Second, there is an implicit assumption that accounting manuals and textbooks in some way are an unbiased reflection of the development of accounting practice and thought. At the time there were some formal education outlets. Mexico City was home to the oldest university in the continent⁸ and there were some institutions offering business administration and accounting courses (Bátiz-Lazo, 2008). But most of the knowledge transfer took place through informal, on-the-job training (such as apprenticeships, visiting stays, etc.). In this regard, the existence of surviving contemporary manuals and textbooks would be helpful but not a decisive piece of information to determine everyday accounting practices. Third, often statements are made without clear distinction as to whether this was a practice in the public sector or in the *haciendas* (and more the point, whether these were involved or not in international trade with merchant houses in the metropolis).

In summary, all indigenous authors identified above have made implicit or explicit claims regarding how the continuity of accounting practice in Mexico was subject to vicissitudes in its colonial metropolis. It is indeed fair to assume that introduction of double entry bookkeeping in Mexico was influenced by practices and institutions in the metropolis during the colonial period. But when exactly did Mexican private and public enterprise adopt double entry bookkeeping is the key issue. Given the handful of primary and secondary sources that survive from pre-independence Mexico, in the remainder of this article we address that debate by examining

accounting practices in Spain before Mexican independence. This enables us to monitor the use and development of double entry bookkeeping across time as well as within organizations trading with American colonies. Of course, widespread use of accounting technology in Spain is not in itself sufficient to make a similar claim for its colony. There is a possibility for other accounting technologies to have had better fit for purpose in Mexico. We therefore also offer new evidence regarding accounting practice in Mexico during the Spanish colony.

DEVELOPMENT OF ACCOUNTING PRACTICE IN THE METROPOLIS

Carnegie and Rodrigues (2007: 453) have noted how academic circles in Spain are one of the handful of non-English speaking spaces characterized by a vibrant research agenda in accounting history. This ‘maturity’ implies there are a number of systematic studies documenting the overall development of Spanish accounting practices. Among these, Hernández Esteve (1996a) and González Ferrando (1996) offer comprehensive compilations on the evolution of accounting technology in both public and private spheres (such as accounting for merchants, local and central treasury). In particular, Hernández Esteve (1996: 71ff) proposes an interesting scheme to segment developments with a starting point in the Middle Ages and up to the 20th Century, namely:

1) Pre-modern stage (circa 1200 to 1500): This period immediately precedes the development of double entry bookkeeping. Accounting documents act mainly as an *aides-memoir*, due to the number of operations businessmen had to remember or consider. Documents (sometimes called ‘memorials’) registered operations in chronological order, describing them with precision through a detailed narrative while mixing debits and credits.

Vlaemminck (1961: 47) observed that memorials evolved into various types of accounting books: some registered personal transactions and others merchandise accounts. These gave rise to single entry bookkeeping. The simplicity and suitability of memorial books for organizations with very few entries per year, resulted in memorials being used even after the adoption of double entry bookkeeping (Hernandez Borreguero, 2006: 6). Vlaemminck (1961)

also states that the single entry method replaced memorial and merchant books as it offered greater order, was much more systematic and methodical and incorporated a greater number of books (as this method was responsible for introducing dedicated books to record debits and credits).

2) Adoption and diffusion of double entry bookkeeping (circa 1500 to 1630). Royal Decrees (*Reales Pragmáticas*) of Cigales (1549) and Madrid (1552) enacted under Felipe II became the first ever recorded regulations in Spain (and in the world) that imposed on private enterprise the adoption of double entry bookkeeping.⁹ Specifically, to register entries in Spanish on a *handbook* (journal) and *cash book* (ledger) using debits and credits. Interestingly, in the vernacular this method was identified as *libro de caja con manual* (journal and ledger system) rather than 'double entry' (Hernández Borreguero, 2003: 297).

Double entry system began to be used as part of government records during the 16th Century. For instance, the city council of Seville used this method from 1565 onwards, that is, 25 years before the Spanish central Treasury (see further Hernández Esteve, 1986: 20; Martínez Ruiz, 1988 and 1992; Rubín Córdoba, 1998; Rubín Córdoba and Mallado Rodríguez, 2000). Also based in Seville, the Treasury Office of the *Casa de la Contratación* (Board of Trade with the Americas) was another early adopter (Hernández Esteve, 1986: 58; Donoso, R., 1996: 119ff).

Here it is interesting to note that Hernández Esteve (1982: 7) considered the use of a double reference insufficient to define it as an accounting system. For him, the use of a full catalogue of accounts (i.e. an accounting plan or chart of accounts) that enables entries for personal and non-personal transactions (including shareholder stock, income and expenses, net income or net loss) is that which defines a double entry system.¹⁰ In our opinion, the view of Hernández Esteve (1982) is appropriate to describe the chart of accounts used by merchants and businessmen. However, anyone will be hard pressed to find concepts such as shareholders stock and earnings within the public sector and ecclesiastical organizations. Yet one would be able to find the use of double entry as the basis for a system of accounts in those and other types of not-for-profit organization.¹¹

3) Silence and apparent oblivion (circa 1630 to 1730). Hernández Esteve (1996:71) was the first to introduce the idea that the 1630s saw the start a third stage, called of silence and apparent oblivion of double entry bookkeeping, within in the production of accounting manuals

and textbooks in the former Kingdom of Castille. Rafael Donoso (1996: 140) documents in detail this period, a time when double entry as a method ‘disappears’ from regulation and accounting thought in Spain.

Other empirical studies have failed to clarify the extent to which double entry was indeed ‘forgotten’. For instance, there are accounts telling that contemporary Spanish bookkeepers and elsewhere in Europe were familiar with the intricacies of double entry but admitted that this method was not known by many of their colleagues (Hernández Borreguero, 2003: 298; Gomes *et al.*, 2006: 34). More recently, Hernandez Esteve (2008) has insisted in the lack of production of Spanish accounting titles dealing with double entry. However, he considered ‘obvious’ that the most important merchant houses in key economic areas would have continued to use the double entry method.

4) *The French doctrine: reappearance of double entry* (circa 1700 to 1900). The establishment of a new dynasty in Spain (1700) introduced several institutional, economic and administrative changes, many of which took more than one attempt to be successfully implemented.

Borbonic administrative reforms initially attempted to introduce double entry in the public sector in 1743 at the *Giro Real* or Cross Border Payments Department and later on in the *Real Hacienda de las Indias* or the Indies Administration Department in 1785 (González Ferrando, 1992: 62 and Donoso, A., 1996: 140). Both were unsuccessful as they found resistance from bureaucrats who were unwilling or unable to adopt that method due to a lack of training as well as being doubting its usefulness on ‘ideological’ and ‘conceptual’ grounds. The initial effort was therefore aborted in 1787. In spite of this, however, there exist written statements of the use of double entry bookkeeping with the public administration of the Spanish empire in Peru and Mexico. Double entry seems to have been successful implemented in those geographies and people responsible for public accounting fought hard for it to remain in place. For instance, the then viceroy of New Spain (*Conde de Revillagigedo*) sent a letter to the Spanish Crown defending the usefulness of a ‘such an interesting development.’ (Donoso, 1997: 1083).

At the same time, the technique regained popularity within the private sector. The most important regulation for private enterprise of that epoch in Europe was the passing of the so called *Ordenanzas de Bilbao* or Bilbao Regulations, published in 1737 (see Henández Esteve,

1996). In chapter 9 (*Sobre los mercaderes y sus libros* - About Merchants and their Books) the regulator namely, *Casa de Contratación de Bilbao* (Bilbao's Board of Trade), explicitly stated that accounts could be kept by following either the single or double entry method, leaving the ultimate choice to the merchant's own discretion. It is quite clear that both accounting methods were well known to the members of the Board of Trade and it relied on this familiarity so as to speak about them in general terms. Yet the Regulations are mute on detailing the superiority of one or other accounting technique in any of its 723 articles. Instead, restoring and guaranteeing commercial good faith were recurrent topics. This suggests they were the priority for the Board of Trade in issuing its Regulations.

The activity in public and private organizations led to a renewal in the production of Spanish accounting literature (with a notable revitalization from the 1770 onwards). Of great importance was the publication of the seminal contributions by Luque y Leyva (1773) and that of Jócana y Madaria (1791).

SILENCE AND APPARENT OBLIVION: ACCOUNTING PRACTICES OF BUSINESSMEN AND BANKERS IN SPAIN (circa 1690-1800).

The silence of which lamb?

As noted above, there was a 'deceleration' in the use of and analytical developments around double entry accounting in Spain during the 18th Century. In a way and in the absence of research using primary records, this apparent oblivion helps to explain the contradictions in modern Mexican historiography. Determining the nature and scope of this apparent 'silence' requires ascertaining whether there is evidence of a void in terms of analytical developments as well as in terms of everyday practice.

As mentioned, the doctrinal production of Spanish authors was conspicuously absent from the Mediterranean basin from circa 1630 to circa 1730. The dearth of an idiosyncratic production in Spanish accounting thought was substituted by (or remedied through the study of) foreign contributions. Some of which were read in original while others were translated into Spanish. This is evident in evidence from Andalusian companies active in trans-Atlantic commerce documented by Capelo Bernal and Alvarez-Dardet Espejo (2004); as well as those based in Mallorca by Manera (1988); Valencia by Franch Benavent (1989); and Catalonia by Vilar (1962) and Maixé-Altés (1994).

Spanish traders and merchants particularly favoured Genovese authors. These included the likes of Domenico Peri (Venecia, 1682; new edition in 1744) and Carlo Targa (Génova, 1692; Madrid, 1753); as well as Sicilian writers such as G. Carlo Amato ed Urso (1740), Onofrio Pugliesi Sbernia (1678; new editions in 1745, 1770) and other Italian authors such as Francesco Garatti (1711) and Joseph Lorenzo Casarregis (1740). There is also evidence of a French influence through the production of authors such as Samuel Ricard (1724) and Jacques Savary des Bruslons (1723).

But what of everyday practice? The record is obscure as to whether business organization, especially in the maritime trade activities, had simply an intellectual interest on developments in ‘modern’ accounting or whether these handbooks, guides and treatises actually influenced daily practice. Indeed, accounts of ‘silence and oblivion’ in Spain have failed to pin point the nature of this phenomenon in specific geographical domains and types of business activity. In order to readdress this, in what follows we discuss surviving records of accounting systems within private businesses whose activities were related to domestic and international commerce as well as some activities related to financial intermediation during the 17th and 18th centuries. Through this evidence we document how double entry rooted in the accounting system of wholesalers during the course of the second half of 17th Century. This evidence thus helps to support the idea that during this period different levels of complexity co-existed. Accounting systems could be more or less sophisticated according to user’s ‘needs’ and nature of their business (Maixé-Altés, 1994b: 43). Of course this, in turn, opens the question as to whether co-existence of accounting systems in Spain was also the case for organizations in New Spain.

Accounting for domestic and international wholesale trade in the Mediterranean

There are noticeable differences in bookkeeping practices within merchant houses (*compañías de comercio* or *casas de comercio*) based along the Spanish Mediterranean coastline at the end of the 1690s from the accounting practices these same companies used after the 1750s. These differences are greater in terms of analytical precision than regarding accounting method. In what follows below, we provide evidence to support the idea that greater analytical precision resulted from a combination of overall economic growth and business practices of individual firms. Indeed during the 18th Century the turnover of Catalan businesses grew substantially while individual wholesalers aimed to diversify their investments. As the examples that follow suggest,

double entry bookkeeping was well established. But it was the need to ascertain the profitability of different investments the element that impinged a more detailed set of accounts and sophisticated bookkeeping system. This suggests that the bookkeepers of 1699 or 1725 were as skilled and knowledgeable as those of the 1750s (Maixé-Altés, 1994a & 1994b: 44).

Surviving records of two merchant houses helped to ascertain the continuity in the use of double entry accounting. On the one hand, *Bensi & Merizano* provided an insight into their accounting practices between 1724 and 1750. On the other hand, similar records were available for the *Duran & Llorens* for last years of 17th Century and early years of 18th Century (AHMB, several sources).¹² Together they provide a first approximation to the changes in accounting practice between those typical of the first half of the 18th Century and those at the end of that century.

The accounting system at *Duran & Llorens* displayed all the technical characteristics of double entry bookkeeping as they kept the two basic books, the daily journal and the ledger (*libro diario* or *manual* and *libro mayor*).¹³ The basic accounts were perfectly defined: for example, the cash account in the assets/debits side and the capital account in the liabilities/credits side. The principal analytical difficulty of these accounting books related to the lack of definition of what 19th Century authors called *cuentas transitorias* or auxiliary accounts. Here we only found a clear definition for debits and credits relating to the profit and loss account. The use of others accounts such as overall the general expenses account is inconsistent. While other 'first class accounts' such as those to register bottomry contracts (*cambios marítimos*),¹⁴ bills of exchange and commissions were non-existent (see Martí, 1819). As a result we found a collection of accounts that lacked any aggregate analytical concepts on debits and credits.

The only accounts that showed a certain degree of 'maturity' in that regard were called customer current accounts and current accounts for correspondents. These were representative of the accounting system of this period because in their construction bookkeepers indistinctively mixed debits and credits. This organization of the accounting plan responded to the interweaving of two idiosyncratic elements of Catalonian accounting in the early 18th Century (Maixé-Altés, 1994, 1995). On the one hand, until the middle of 18th Century entries in ledgers by bookkeepers in Catalonian companies followed the entry style of the primary books. This involved a rather descriptive type of entry, which was closer to an explanation in the draft book or the journal than

to the rather ‘analytical’ nature of the charge and discharge system of the ledgers. There was thus no basic function, system, key or index to reconcile the whole system of accounts. On the other hand, the rather archaic, desegregated and unconsolidated nature of Catalonian accounting systems also responded to the diversification of Catalonian investment portfolio. Businessmen opened a dedicated account for every business and even individual investments. The idea was that, at a later date, this approach would facilitate prompt recognition of the profit or loss for each and every transaction. The analytical nature of this approach was evident in that these accounts were consolidated into a balance sheet (AHMB, FC. A-213).¹⁵

We also found strong similarities when comparing the accounting system at *Duran & Llorens* with that at *Bensi & Merizano*. These similarities began to emerge after 1875. A superficial examination of the accounting system at *Bensi & Merizano* could have branded it as elementary, archaic, and even backward in comparison with that at *Duran & Llorens*. But closer examination suggested that accounting at *Bensi & Merizano* offered a large degree of flexibility. The accounting plan opted for a procedure that gave analytical priority to the customer-correspondent. As a result entries for personal current accounts predominated within the ledger. The ledger as the key source of information for the running of the business focused on two concepts: it informed and provided details of account balances for all the intermediaries of the company and it also provided a summary of profit and loss per account.

Other information could be obtained by consulting two auxiliary books, namely the invoice book and the bills of exchange book (*libro de tratas*). The invoice book recorded information regarding the traffic of goods, while as its name implies the second book recorded future payments.¹⁶ Several objections could be made to the accounting plan at *Bensi & Merizano*. But, at the same time, one must admit that its approach seemed ‘fit for purpose’ when considering other options for a medium size company, with a highly diversified business portfolio (that encompassed both mercantile trade and financial services) and a business model geared to fee income generation. Moreover, building the accounts system around personal current accounts offered the possibility of a prompt and swift calculation of the balance sheet.¹⁷

Accounting systems at *Duran & Llorens* and *Bensi & Merizano* seemed to be in contrast with practices and accounting plans of other businesses in Catalonia during the second half of 18th Century. For instance, practices at *Armengol Gener y Compañía* in 1747 have been

documented as the first case of a well structured accounting system as well as representative of the 'modern' practices pursued by 18th Century companies in Barcelona. Firstly, the 'basic' accounts were found to be perfectly determined: capital account, profit and loss, cash, overheads, fee income and commissions, bottomry contracts, *diners deixats a la part* (income derived from the medieval *commenda* contracts), insurance and *barca* (the share of ownership of merchant ships). Secondly, accounts to record transactions around bills of exchange followed mixed system. In 1747 these mixed system was consolidated into a single account (*cuenta de sacas y remesas*). Later on, however, growth of trading and financial activity resulted in the creation of new accounts.

Thirdly, accounting for merchandise trade and commerce also offered a system geared towards the business model of *Armengol Gener*. This part of the accounting system was found to offer greater precision and aggregation of the entries than those relating to the bill of exchange account and 'basic' accounts. Although it should be noted that there was a bias towards creating individual accounts by business sector or type of goods traded. Hence, there was a high degree of personalized entries (reflecting large personal customers and business correspondents). However, the key element of the accounting system at of *Armengol Gener* was the precision and speed at which they could draft a closing balance sheet. For instance, the ledger systematically recorded initial and the final balance statements for every year. These balances clearly specified creditors and debtors as well as the different concepts contributing to overall profitability of the business. Indeed, as a photograph of the financial situation of the company at that point in time.

Accounting practices at other highly diversified business such as *Glòria* family and merchant house, *Huguet & Dupré* at end of the 18th Century as well as *Cristóbal Roig y Compañía* in the first quarter of 19th Century bear great similarity to the system pioneered by *Armengol Gener* (1747-1784) (AHMB, FC, A. 1-9).¹⁸ Therefore, we can claim that by the 1750s the double entry system was used by some family firms and merchant houses in Barcelona with certain degree of sophistication and structure. Yet at the same time, we observed great variety in accounting practices in Catalanian and many other merchant houses in the Mediterranean basin. But that was not taken mean that some firms with rather archaic accounting practices developed qualitatively inferior business, when compared with other businesses with apparently more structured system of accounts.¹⁹ We found that many merchant houses kept their accounting

system largely unchanged and ran their organization based on tailor-made approaches to their small volume of trade and high degree specialization in investments and business portfolio.

Moreover, there might be a temptation to classify the accounting systems at merchants such as *Duran & Llorens* and *Bensi & Merizano* from 1690 to 1750 as confusing and archaic when compared with the ‘technically modern’ at some merchant houses such as *Armengol Gener* from 1747 to 1784. However, we have presented some evidence to argue that such a view would be somewhat inappropriate because all these accounting systems ultimately rely on double entry bookkeeping. Their design and end result were quite different and given the absence of detailed regulation or generally accepted accounting principles, each followed a number of practices which were largely idiosyncratic to the custom and business model of the merchant or family firm.

Brief comparison of accounting practices in Catalonia and Madrid-based firms

The discussion in the previous section argued that there were minimal differences in basic architecture between the Catalan accounts plan between circa 1675 and 1800. All ultimately build on the concept of double entry. We have advanced the idea that variants in accounting method related to degree of diversification and turnover size.

We further contend one can arrive to similar conclusions when considering the accounts kept by some Madrid-based companies. Comparing these accounting systems within Madrid-based firms in the second half of 18th Century is interesting in that the latter offer the opportunity to analyze firms involved in ‘domestic’ trading within the Iberian peninsula as well as being involved in foreign trade and financial services. Activities that were sometimes undertaken directly and others by engaging in the provision of financial services.

We reviewed the accounting practices at *Dutari Brothers* from 1742 onwards. Around this period, this company developed a significant financial services activity by providing credit in the form of discounting bills of exchange and direct loans to businesses involved in the production of Castellan wool. We also examined the activities of *Gio Batista Rossi* after 1758, *Quenau & Co.* after 1759, and *Banco de San Carlos* after 1782 (AHBE, several sources).²⁰ Besides having an important part of their business located in Madrid, they all engaged in financial services. This as they all acted as independent clearing houses for bills of exchange and offered *bureau de change* facilities to customers. Another common characteristic was that they all developed a double entry

bookkeeping system with a 'classic' structure, that is, using the ledger and journal for the management of their accounting system.

At *Dutari Hermanos*, for example, discounting bills of exchange was one of the most important income generating activities of the company, so naturally it had a bearing on the account plan. These activities required keeping detailed records and control of the number of days elapsed since an advance was made (whether in the form of a direct loan or discounting a bill of exchange). This tally was the basis to calculate accumulated interest. To record the transaction several auxiliary books were used together with the journal and ledger. These auxiliary books included one for cash, one for discounted bills of exchange and another for outstanding bills of exchange.²¹

In summary, evidence from Madrid-based firms involved in domestic and foreign trade and financial services, together with Catalonian firms involved in wholesale international trade and investment suggested that double entry bookkeeping was common practice in the accounting of private firms in the Spanish mainland at the end of the 17th Century and during the 18th Century. However, do not claim that there was a generalized use of this accounting technique. The absence of widely accepted accounting principles together with the gloomy intellectual and economic environment of the end of the Habsburg Monarchy in Spain (Donoso, A., 1996), resulted in many bookkeepers devising accounting systems that best fitted the purpose of their organization. Accounting practices in firms of different size and degree of diversification discussed above, suggest that the nature of the accounting system and the prevalence of rudimentary methods was strongly influenced by the business model and level of complexity in their operations. Complexity that arose from a combination of the type of market they were involved in and the volume of their trade. Our evidence thus suggests that double entry bookkeeping was most likely to be found amongst large or diversified organizations. These were the type of firms that usually engaged in trade with others elsewhere in Europe and the American dominions, thus opening the possibility for technological transfer to private firms established in the colonies.

FRENCH ENLIGHTENMENT AND THE RE-EMERGENCE OF DOUBLE

The death of Charles II of Spain, the last of the Habsburgs, in 1700 was immediately followed by the coronation of Phillip V, who became the first monarch of the ruling Borbon dynasty. A large

body of systematic studies document how the change of dynasty associated with the introduction of innovations in the social, economic and political spheres. All inspired by the philosophical tenants of the French Enlightenment. These reforms extended to the Spanish overseas dominions (Anes, 1994; Navarro García, 1991). At the same time, they had an impact on accounting regulation and practice (e.g. Baños *et al.*, 2005).

Management of public finance in New Spain in the 18th Century

Since early in the 18th Century, the newly arrived Borbon administrators gave the viceroyalty of New Spain a priority as a geo-strategic enclave for three main reasons, namely:

- Deep water coastal ports on two oceans, which also allowed maritime links with Spanish possession in the Far East (namely, the Philippines) (Navarro García, 1994);
- Act as a platform to originate capital investments into Asian and Caribbean possessions, with the side effect that these investments strengthen the *raison d'êter* to remain part of the Spanish Crown (Humboldt, 1822);
- It regularly made substantial fiscal contributions to the Treasury as well as transferred precious metals (mainly silver) to the peninsular economy.

The pace of the Borbonic reforms strengthens during the reign of Charles III (1759-1788). This period of change began with major fiscal measures introduced following the arrival of José de Gálvez y Gallardo, Marquess of Sonora as Visiting Envoy for Treasury and Justice as well as Army Quartermaster General (*Visitador de Hacienda y Justicia e Intendente General del Ejército*) (Arcila Farías, 1955). Gálvez's mandate was detailed in a confidential memorandum dated 14th April 1765. In his letter, Charles III urged Gálvez to look for ways to maximize financial returns to the Crown but without creating new taxes or increasing taxable income thresholds (AGI, México, 1249).²² The king wanted Gálvez to compile and recuperate as much information as possible regarding the situation of public finances in New Spain so that, at latter date, this would be the basis for plan of action to achieve greater efficiency in the use of public funds while also looking to improve the running of public bodies.

The general disorder of New Spain's treasury was considerable. For instance, the General Accounts Court of New Spain (*Tribunal de Cuentas de Nueva España*) had a duty to send an

income and expense report every six months to the General Accounts Office of the Council of the Indies (*Contaduría General del Consejo de Indias*). By 1759, when Charles III ascends to the throne, the Accounts Court had failed to inform the General Accounts Office for many years (Arcila Farías, 1955). In view of the situation, the king immediately ordered a review and audit of all the books and accounts of the viceroyalty between 1703 and 1759. After a meticulous examination, the General Accountant Office's report criticized the lack of method and procedure to determine the order of entries in the books of account as well as the absence of any rigor in the process of checking and verification of these books.

Indeed it was the apparent the loss of income to the Crown, due to the lack of order and absence of information regarding a New Spain's accounts, which led Gálvez's visit. To highlight its importance, the king issued a Royal Order (11th March 1765). In this Order he instructed the General Accounts Court to send detailed accounts of all incomes that belong to the Royal Treasury (AGI, México, 2045-A).²³

As a response to the Royal Order, the General Accounts Court issued a Decree dated 1st July 1765. This Decree basically reinstated the contents of the Royal Order but retroactively, so that the information not yet supplied to the Council of the Indies was forthcoming (AGI, México, 2045-A). Meanwhile, when Gálvez arrived to New Spain, he found that most sources of income were leased to private bodies. This leasing system (*arrendamiento* or *asiento*) had been typical of the Hapsburg administration, where a person or company gained exclusivity in the exploitation of a specific source of income of the Royal Treasury. In return for allowing the exploitation of a lease, the contractor (*asentista*) paid to the Crown a fixed amount in cash and/or made a payment in kind (AGI, México, 1249). Under the Hapsburgs, therefore, the Royal Treasury effectively outsourced to private contractors unknown income streams emerging from the collection of taxes, import duties, tithes, etc., in exchange for a known fixed payment.

However, the leasing system was detrimental to both taxpayers and the Royal Treasury. On the one hand, contractors profited from the ignorance of Crown representatives regarding the potential of individual leases. On the other, in cases where winning bidders were forced to pay a predetermined tax or rent (*canon*), contractors would simply pass on these to taxpayers or ultimate consumers.

The introduction and relative success fiscal reforms at the metropolis were the basis to eliminate the leasing system while increasing tax income but without changing the tax base in New Spain. To achieve this, Gálvez engaged in a swift process of economic reform while implementing a new collection system. It replaced the leasing system for one where cadres of trained and competent bureaucrats were directly responsible for the collection of all the Royal Treasury's income streams. Actually, direct management of the collection system by Crown representatives met ideals such as centralization and more effective administration which had been instrumental in fuelling the start of the reforms.

Gálvez's first set of measures were resisted by Tomás Ortíz de Landázuri, *Contador General del Consejo de Indias* (Comptroller General of the Council of Indies) with the support of the *Consulado de México* (Mexican Consulate). The latter was a body that brought together representatives of the most important merchants and importing houses, which in a letter dated 22th December 1767 detailed their complaints about the reforms. To resolve the dispute, the then Minister for the Indies, Julián de Arriaga, requested the intervention of Pedro Rodríguez Campomanes, Public Prosecutor of the Council of Castile (*fiscal del Consejo de Castilla*). In his long and meticulous report, Rodríguez effectively obliterated the main arguments against the fiscal reform. Arriaga considered that the new method could 'prevent by using fair and recognized means in all cultured Nations, the frauds which annihilated the Exchequer and destroyed legitimate commerce [...] the new rules were clear, easy, fair, destroyed vices, suitable for the public good' (AGI, Mexico 1250).

The reform also faced the challenge of ending with the long establish custom of interpreting metropolitan laws and regulations according to personal or local interests. It was common practice in the dominions that regulation from the metropolis was acknowledged but in fact these were seldom fulfilled. This effectively delayed the establishment of royal directives while seeking protection under the standard expression: 'I obey but I do not execute, because I have the (legal) right to representation' (Donoso, A., 1996: 74).

A major challenge that Gálvez had to tackle was ascertaining the fair value of the Royal Treasury's income streams. The income paid by contractors to the Royal Treasury appeared as a debit in the annual accounts of the Royal Public Office of Mexico (AGI, Mexico 2045-A). But as mentioned, the Royal Treasury lacked the means and relevant information (AGI, Mexico 1123).

It seems the contractors were so secretive that no record of their transactions survived even to their contemporaries.

In summary, Gálvez introduced measures for centralized and direct administration of the Royal Treasury's income streams during the last quarter of 18th Century. These measures brought about a radical change in the financial management of the Royal Treasury in New Spain and included an exhaustive control of cashflows, detailed explanations of the concepts related to these cashflows as well as physical inventories related to individual income streams.

Changes in the accounting system of the Royal Treasury in New Spain

A consequence of the new measures for centralized the administration of the Royal Treasury's income stream in New Spain was the introduction of changes in the accounting system. Initially the new accounting system used the charge and discharge or single entry method (*método de Cargo y Data o partida simple*), which envisioned, first, charging all the amounts perceived and, second, crediting all the amounts spent or delivered (Hernandez Esteve, 1992). Gálvez was thus following the prescribed method for public administration accounting in Spain since 1596.

However and according to Donoso (1997), there was a first attempt to introduce double entry bookkeeping in the public administration of the Indies in 1784. Donoso points to the years 1786 and 1787 as those marking the introduction and subsequent derogation of the double entry method in the management of the viceroyalty of New Spain. Rivarola (2008: 159ff) provides additional empirical support by documenting developments in the Province of Paraguay (viceroyalty of the River Plate).²⁴ Rivarola's daily journals and ledgers for 1786 show that double entry was used only after 1784 and abandoned circa 1787. He also notes there was no immediate return to single entry but to a 'hybrid' method (Rivarola, 2008: 189).

Further empirical evidence in support of Donoso (1997) and Rivarola (2008) was found in the General Archive of the Indies. It held in reserve monthly cashflow statements of the gunpowder monopoly of New Spain (*monopolio or renta de la pólvora de Nueva España*) (AGI, Mexico 2217). Figure 1 illustrates a facsimile of these statements for the 1786-1787 period, where entries appear ordered by debits and credits instead of the single entry or charge and discharge method.

rationale was that with this method, the employees of the General Accounting Office could swiftly detect possible frauds or errors in the accounts.

After Gálvez's death, his successor as Minister of the Indies, Antonio Valdes, commissioned in July 1787 several reports regarding the convenience of using double entry bookkeeping for the financial control of Spanish public administration. The people responsible for elaborating these reports were government employees that had not been involved in the process of introduction of the accounting reforms in the colonial administration. The reports were unanimous in asking for a return to the single entry method, using similar arguments that those used by Baron Von Bielfeld in his *'Institutions Politiques'* of 1762. Valdes disregarded the arguments put forward by Machado and other top government officials in support of the double entry method while, at the same time, took steps so the King would fail to learn about alternative views. As a result, the double entry bookkeeping method was abolished from Spanish public accounting on the 25th October 1797.

Donoso (1999 and 2001) claims that the rejection of double entry took place solely on the basis of political considerations. No evidence was found that double entry would cause problems or was indeed an inferior accounting technique. The double entry system was abolished without considering its effects on the management of royal public offices of the Indies. The latter were ignored simply because financial statements and books of accounts books took two to three years to arrive to the metropolis. The double entry method was abolished before any such statements or books had physically arrived to the Spanish mainland. Thus, the double entry method was abolished without regard to any difficulties or shortcomings during its introduction to colonial institutions (problems and shortcomings that never existed). Moreover, it was abolished while disregarding the support to double entry from government employees in the colonies.

CONCLUSION

In this article we propose that future studies of Latin-American accounting history should be framed by the evolution of accounting practice in Spain. These studies should offer a synthesis that emerges from different contemporary sources such as textbooks and manuals and surviving company records as well as attention to educational practices. Furthermore, there is evidence to suggest that different accounting systems co-existed for long periods in early modern capitalism in Spain. Sometimes even in the same organisation. That is, different organizational forms in

Spain are seen as adopting the accounting system that best suited their purpose and business model. In the absence of empirical evidence to the contrary, there is no reason to believe that private firms on the west coast of the Atlantic also adopted fit-for-purpose accounting.

The point of departure illustrate the above is a reinterpretation of indigenous contributions discussing the arrival of double entry bookkeeping to private and public accounting in Mexico. These contributions debate whether there was continuity or discontinuity in Mexican practice immediately after independence from Spain (i.e. the end of the colonial period). These contributions also seem to agree that double entry really established in the second half of the 19th Century.

The path of adoption and diffusion of this accounting technology in the metropolis then provides a framework to ascertain the validity of claims by Mexican authors. A brief summary of the historiography of double entry in Spain noted that some Spanish authors have pointed to an apparent crisis in the Spanish history of double entry while pointing to a desertion in the use of this method between the 17th and 18th Centuries. However, through the analysis of surviving company records we show how that the technique had a much wider use in private companies than otherwise claimed. This is very much the case for firms involved in large volume business or diversified investments. In turn, this evidence led us to believe, first, that the apparent desertion (at least as far as the production of Spanish bibliographic material is concerned) must be understood in the context of the predicaments and general chaos that characterized the end of the Hapsburg dynasty. This period had a significant impact on the regulation and doctrinal production in the Spanish metropolis. The Hapsburg's economic mismanagement was also instrumental in decimating the number of skilled practitioners by reducing opportunities for training new cadres of competent bookkeepers. At the same time, large numbers of bankruptcies and business failures with the consequent reduction of surviving records significantly reduced possibilities to study this epoch systematically. Hence one must be careful not equate a 'slow down' in the diffusion of the double entry method in Spain with total desertion or even neglect of this accounting technology.

Second, we present evidence that suggests the use the double entry method had taken a firm hold in firms established in the more industrious geographies of Spain by the 1690s. There is no reason to believe that firms outside of the metropolis and particularly those based in New

Spain and involved in foreign trade or investments in Asia and the Caribbean, were excluded from learning about the double entry method. However, it is likely that Mexican (i.e. Novo Spanish) firms adopted European accounting technologies with some delay and chiefly through the interaction with peers in business and commerce as well as migration of skilled employees and entrepreneurs. This because 'on the job training' rather than formal education was the chief method for knowledge transfer. But as noted above, the crisis at the end of the Hapsburg Empire could have disrupted opportunities for knowledge transfer to the colonies. We are thus led to believe that this accounting technique was first adopted in New Spain as early as the 17th Century. That is, considerably earlier than that claimed in most Mexican contributions.

Third, with regards to the public sector, it could be said that public accounting systems may have had a lesser degree of complexity when compared with the requirements of private accounting systems. But in fact the accounting systems of public and private bodies were by far very different during the early modern capitalist era. It would be erroneous to think they are equivalent mainly because the analytical criteria each type of corporate body was very different. For instance, we have provided evidence where accounting systems in private firms associated with a greater number of accounts and accounting books. For private firms concepts such as capital, profits and the role of partners were key, whereas they are non-existent for public administration.

Nonetheless, our interest in highlighting in the comparison of public and private bodies is that public accounting systems had introduced criteria that went beyond the charge and discharge method much earlier than anticipated by Mexican sources. Indeed, the numerous forms of Spanish institutions and administrations (municipalities, colonial, etc.) first introduced the double entry method during the second half of 16th Century. In the beginning of 17th Century the Spanish Treasury and other public administration bodies developed double entry accounting systems while it was in the middle of 18th Century when the Borbon introduced double entry bookkeeping to colonial public administration (although these efforts were not always successful). Specifically, top officials of the viceroyalty of New Spain (namely administrators at the Accounting Court and General Accounting Office of the Indies) were keener to adopt double entry bookkeeping than top officials at the metropolitan administration. However, it seems that the progressive deterioration of the metropolitan politic and economic control of the dominions at the end of 18th Century together with non-standardized rules (i.e. no concept of generally

accepted accounting) and the processes leading to independence, generated a break up in Novo Spanish/Mexican accounting practices which indigenous firms most have found difficult to solve in the short term.

The lack of clarity regarding accounting practice at the end of the colonial period and during the early independent Mexico, probably resulted in an informal framework where some individuals employed double entry bookkeeping while others in similar organizations stuck to the charge and discharge method. This view helps to explain why our survey of Mexican sources apparently found contradicting claims based on surviving records of several *haciendas* and mines at the beginning of 19th Century. The volatile economic and political climate that followed included mass outward migration of Spanish businessmen and capital, the separation of Central American states as well as armed conflict with France and the USA, the latter resulting in the loss of over half the territory at independence from Spain. Moreover, industrialization in Europe meant a loss of many traditional export markets for natural dyes. All this had a profound effect on any attempt at the former colony to regain continuity in accounting practice. In fact it is until the second half of the 19th Century when a more stable economic and political environment as well as restart of European investments and some migration, when the modernization of the economic system entailed the gradual introduction of double entry bookkeeping in Mexico. This 'normalization' is evident in several areas of public administration (first in Army accounts and then in the Treasury itself) and in Mexican business (practices which were also influenced by the foreign investment in developing manufacturing capacity). The introduction and adoption of double entry bookkeeping in Mexico was thus a consequence of knowledge transfer from its former metropolitan power as much as a consequence of institutional 'normalization'.

Table 1: Summary of studies on Mexican accounting history

Author (Chronological)	Type of publication	Use of sources	Observations
Maniau (1793)	Book	Surviving business records.	Summary of the <i>Real Hacienda de Nueva España</i> . History presented by the author in 1793 to the <i>Ministro Secretario de Estado Don Diego de Gardoquí</i> .
Fonseca y Urrutia (1845-53)	Book	Surviving business records.	<i>Historia General de la Real Hacienda en Nueva España</i> (General history of royal holdings in New Spain) (6 volumes).
García Guidot (1940)	Article	No specified.	General commentary regarding accounting practice in the colonial period.
García Guidot (1952)	Article	Surviving business records and secondary resources.	Inventory of the accounting developments from the colonial period until mid-20 th Century.
Gallo (1957)	Article	Surviving business records.	Textbook and manual dated 1804 (<i>hacienda</i> or private farm in Guanajuato).
de la Puente (1959)	Dissertation	Secondary resources.	Emphasis in the colonial period.
Gertz Manero (1976)	Book	No specified.	Compilation of the development of accounting in the world since early history
TePaske <i>et al.</i> (1976)	Book	Surviving business records and secondary resources.	Systematic study of accounting practice in public enterprise during the colonial period.
Alvarado <i>et al.</i> (1983)	Book	Secondary resources.	Study of accountancy in Mexico since pre-Columbian era to the 20 th Century.
Klein and TePaske (1986; 1988)	Book	Surviving business records and secondary resources.	Systematic study of accounting practice in public enterprise during the colonial period (two volumes).
Rodríguez Álvarez y Yáñez Morales (1995)	Book	Secondary resources and oral histories.	Possibly the most detailed and complete study on Mexican accounting history and the accounting profession in Mexico. Emphasis in the 19 th and 20 th Centuries.
Millán Torres (2000)	Book	Secondary sources.	Analysis of a random collection of text books used in 19 th Century.

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NOTES

¹ *Estados Unidos Mexicanos* was first adopted in 1824 at the end of the war of independence. However, it changed a number of times during the 19th Century following changes in forms of government. It was reinstated with the passing of the Constitution of 1917 and has remained its official name ever since. However, in 2003 the then *Diputado* (Congressman) Felipe Calderón (who took office as President of the Republic in 2006) introduced a motion to replace it with *México* in 2010.

² The same view was shared by participants at the recent 3rd International Congress of the Asociación Mexicana de Historia Económica (AMHE) (Cuernavaca, 2007).

³ Universidad Nacional Autónoma de México or UNAM (catálogo general y Biblioteca Nacional de México), Instituto Politécnico Nacional (IPN), Instituto Tecnológico Autónomo de México (ITAM), Universidad Iberoamericana (UIA), Universidad Panamericana, Universidad Anáhuac, Universidad Anáhuac del Sur, Universidad Metropolitana, and Mexico City campi of the Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM).

⁴ In 1917 university graduates of accounting programs adopted the *Contador Público Titulado* (CPT) to distinguish themselves from those with ‘technical’ degrees (*contadores* or bookkeepers). It also made reference to the American, Certified Public Accountant or CPA. This form was replaced by *Contador Público* or *C.P.* (Public Accountant) in the 1950s following changes in the study plan at the National University (UNAM). See further Alvarado Martínez y Escobar *et al.* (1983), Bátiz-Lazo (2008), Gertz Manero (1976) or Rodríguez Alvarez and Yáñez Morales (1995).

⁵ In 1923 the Mexican Association of Accountants (*Asociación de Contadores Titulados*) changed its name to Mexican Association of Certified Public Accountants (*Asociación de Contadores Públicos Titulados*) and in 1955 to Mexican Institute of Public Accountants (*Instituto Mexicano de Contadores Públicos*). See <http://portal.imcp.org.mx/content/view/23/287/> (Accessed 18/Jul/2008).

⁶ Alvarado Martínez y Escobar *et al.* (1983:107) also state: ‘From the discussion above, we can deduct a considerable delay within Mexican governmental accounting practice in relation to European countries where [the double entry bookkeeping] method was used from the 15th Century onwards.’ These authors do not specify their sources nor on what basis they were able to support such a daring diagnosis.

⁷ The belated arrival of German investments and their emphasis in financial transactions before the start of the revolution in 1910, could explain the lack of influence of accounting thinking of this country in Mexico. However, this is purely speculative and thus, a question open to empirical investigation.

⁸ Today's National University ('*Universidad Nacional Autónoma de México*' or UNAM) traces its roots to the 'Real y Pontificia Universidad de México', which was established in 1551.

⁹ These *Reales Pragmáticas* (Royal Laws) appeared in the '*Novísima Recopilación de las leyes de España, mandada formar por el Señor don Carlos IV*' (New Compilation of Spanish Laws, entrusted by King Carlos IV) of 1805. Specifically the 12th Law stated that 'all banks and public lenders, and merchants, and other people, Spanish as well as foreign people, making business here as well as other countries'.

¹⁰ Raymond de Roover (1937, pp. 270-271) defined the minimum characteristics to consider an accounting system using the double entry method. These guidelines are similar to those mentioned above but also require that debits and credits add up the same amount and that all amounts must be in the same currency.

¹¹ Some authors define the public accounting system as double entry although the accounts chart had similar limitations. See further Donoso (1996, p. 144). Note that Hernández Esteve (2005) has softened the view on what constituted a double entry system as expressed in Hernández Esteve (1982).

¹² Archivo Histórico Municipal de Barcelona (henceforth AHMB), Fondo Comercial (FC), A. 195, 197 (Duran-Llorens Co.), A. 199, 213 (Ignasi Llorens). Archivo y Biblioteca de Can Mayans (ACM), Vilassar de Dalt-Barcelona, Accounting books of Bensi & Merizano (1724-1750).

¹³ As mentioned above, we consider these practices as using double entry bookkeeping. Not because they employed the journal and ledger, but because the accounting system actively employed double references: every credit demanded the existence of one debit (G. C. Amato ed Urso, *Il microscopio de computisti*, Palermo, A. Felicella, 1740, p. 333).

¹⁴ The bottomry contract (*cambios marítimos* or *préstamo a la gruesa ventura*) was a variant of the mutual contract. This contract involved lenders providing money (or any other consumable) to a ship owner (or his agent) with the sole purpose of maritime transportation (usually for trans-Atlantic voyages). The owner of the ship or his agent (be the master or a sailor), mortgages and binds the ship (and sometimes the accruing freight) as security for the repayment of money advanced or lent. If she terminated her voyage successfully then the ship owner (or his agent) paid to the lender an interest or premium (*pretium periculi*). If the ship wrecked or the cargo failed to arrive to the port of destination, then the lender lost capital and interest.

¹⁵ The use of double entry bookkeeping is clear in other cases as well. This evidence proceeded from the existence of opening and closing balances at the beginning and at the end of the accounting year. For instance, in the ledger for 1719-1722 of Ignasi Llorens shows entries for 1722 while stating «*Bilans del present llibre a 1722*» (Balance sheet at the end of 1722) (AHMB, FC. A-213).

¹⁶ The *Ordenanzas de Bilbao* (1735) stipulated four compulsory books: a draft book or a journal, the ledger, a book to record the largest volume of business or an invoice book and a letter copier (Cap. IX, tit. 1). Evidently this norm or rule fitted what was usually practice at a large number of merchant houses.

¹⁷ The constitution certificate of the company in 1724 made a specific reference to this point (Arxiu Històric de Protocols de Barcelona, henceforth AHPB, A. Comellas (mayor), 1^o manual).

¹⁸ AHMB, FC, A. 1-9, Ledger of Armengol Gener y Cía. (1747-1784). The other companies were stored in the same archive.

¹⁹ See Bici (1991). In this sense we could include the case of the *Durazzo* family (Genova) (Archivio Storico dei Durazzo, marchesi di Gabiano. Génova). This was a very important and well-known company. Its accounting system could be considered as quite 'advanced', yet the entries for the ledger were accompanied by substantial handwritten

details about the transaction. This approach confirms the idiosyncratic nature of accounting systems at this point in time (where the development was strongly influenced by previous practices within each organization).

²⁰ Archivo Histórico del Banco de España (henceforth AHBE), Secretaría: Dutari Hermanos, libros 18560, 18637, 18638, 18616; Gio Batista Rossi, libros 18558, 18559, 278P, 235P, 272; Rossi, Gosse y Cía., libro 322; Casa Quenau, libro 272, 423, 453; Banco de San Carlos, libros, 240, 246, 251.

²¹ AHBE, Secretaria, libro 322 de Rossi, Gosse y Cía. y libro 18616 de Dutari Hermanos.

²² Archivo General de Indias (henceforth AGI), México, folio 1249.

²³ AGI, México 2045-A, Cuenta general de la Caja Real de México, 1764-1769.

²⁴ The viceroyalty of the River Plate (*virreynato del Río de la Plata*), roughly contained the territories of present day Argentina, Bolivia, Paraguay and Uruguay.

²⁵ Real Cédula 20th May 1629, Accounting Court of New Spain, AGI, México 320.