

REFRAMING IMPERIAL CHINA'S INDIGENOUS ACCOUNTING HISTORY: FURTHER DISCOVERIES IN ARCHIVAL MATERIALS FROM THE THREE CENTURIES BEFORE 1850

ABSTRACT

Over the last seven centuries double-entry bookkeeping ('DEB') has gradually become universal in modern advanced economies. How far did the indigenous accounting of China's historically successful economy parallel DEB? We propose a scheme for classifying stages of bookkeeping that approach full DEB, review recently available 19th century Chinese accounting manuals and re-examine how far their recommendations reflect practice to be found in original account books contained in the archives of the Zigong brine wells for 1916-1917 (which have been argued to be essentially unchanged from the 19th century Qing era and perhaps earlier) and in the surviving accounts of the Fēngshèngtài salt traders of Henan province spanning 1854 to 1881. We introduce the accounting records we have now discovered from merchanting businesses in Anhui province, which span 300 years and survive from the 1590s onwards. These are all more sophisticated than the 'merchant-banking' accounts in the vast archive of Tōng Tài Shēng covering 1798-1850, and in the case of the Anhui merchants' accounts comprise 'balance sheets' that include monetary values for physical as well as monetary assets, matching their owners' 'capital'. We tentatively conclude, on the basis of the evidence now emerging, that despite its variety of *forms* indigenous Chinese style accounting practice may in some cases have captured the structural essentials of DEB's *content and functions* and might be labelled 'Chinese-style double-entry bookkeeping' ('CDEB'), over which Western bookkeeping had no *conceptual* advantages. Continuing collaborative archival research is now needed to seek further confirmation.

KEYWORDS: Comparative international accounting history. Chinese accounting archives from Ming to late Qing era; Chinese business history; double-entry bookkeeping (DEB); Chinese-style double-entry bookkeeping (CDEB).

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1. Introduction: background, motivation and contribution

Our historical knowledge of indigenous Chinese business and its bookkeeping and accounting practices has recently been advancing significantly (Frost, 2022). Comparative international accounting history ('CIAH') (Carnegie & Napier, 2012) can help bring into sharper focus what are the distinctive features of the history of Western accounting. Over the last seven centuries double-entry bookkeeping ('DEB') has gradually become universal in modern advanced economies (first in the mercantile and then in the industrial eras) and comparison with indigenous Chinese history can make clearer what have been its relative advantages (or disadvantages).

It was the Western victories in the Opium Wars of the mid-19th century that forced on China the 'unequal treaties' that ceded Hong Kong to Britain and created several trading concessions in ports that had previously been closed¹ to foreigners since the Ming dynasty's edict in the mid-15th century. Before this forced 'opening up' it can be assumed that Chinese business practice was free of the Western influences that would gradually come to dominate over the next century or so until the Communist Party's victory and establishment of the People's Republic of China in 1949 (Bickers 2017; Rowe 2022). So our focus is on evidence from before about 1850.

A recent survey (Camfferman and Detzen, 2018) is able to say about the subsequent period:

Several contributions (e.g. Aiken and Lu, 1993; Guo et al., 2011) describe China's long tradition of indigenous accounting practices. By the late imperial period these had developed some features associated with Western double-entry bookkeeping, but remained sufficiently distinct to make the adoption of Western style-accounting seem a significant step. Auyeung (2002) and Auyeung and Ivory (2003) emphasize the slowness or "stagnation" of the adoption of Western-style accounting and note that indigenous accounting methods continued to be used into the early twentieth century by enterprises which in other respects adopted elements of Western technology. *They do not discuss in detail in what sense this "stagnation" might be seen as problematic.*²

¹ Except for Canton (now Guangzhou).

² *Our emphasis added.*

How much more can now be said about the characteristics of indigenous Chinese commercial accounting, and its relationship to China's economic development, in the light of emerging archival evidence?

This paper's motivation and contribution is to complement and extend the findings for the early 19th century previously reported in Yuan et al. (2017) and thereby to offer a new perspective on how to view the comparative developments in China and Europe and the development of 'modern' accounting practice. We propose a general system for classifying the stages by which bookkeeping may evolve into (the equivalent of) Western DEB and, through reviewing some 19th century Chinese accounting manuals together with original evidence newly found in Chinese accounts dating back to the 16th century AD, we are able to tentatively conclude, on the basis of the evidence now emerging, that—although it differed in *form* from Western DEB—despite its variety of *forms* indigenous Chinese style accounting practice may in some cases have captured the structural essentials of DEB's *content and functions* and might be labelled 'Chinese-style double-entry bookkeeping' ('CDEB'). As several Chinese scholars have previously argued (but without the backing of any surviving evidence), this implies that *conceptually* there was no economic advantage to the Western DEB system in supporting business success. Further collaborative research is still needed to confirm this conclusion.

Against a traditional view of Imperial Chinese economic backwardness and stagnation (but c.f. Goody, 1996), wherein there might only have been some 'seeds of capitalism' (Mao, 1939), in recent years original archival evidence has gradually been emerging in China about a high level of commercialization, well-developed factor markets, and sophisticated and prevalent use of contracts regulated by custom in China, before 'the Great Divergence' that was marked by the West's Industrial Revolution (Goldstone, 2002; Brandt et al., 2014; Feuchtwang & Steinmüller, 2017, chapter 3; Frost, 2022). There was active trade domestically in the surpluses from agricultural produce and domestic weaving etc., as well as internationally (famously tea, silk and porcelain). Indeed, the 'California School' (e.g. Pomeranz, 2000) has argued that China may have rivalled European standards of living until the Industrial Revolution pushed Europe (led by Britain) and then America ahead—although others have argued this achievement was limited to the Yangzi delta region and Broadberry now argues that China's significant relative decline had begun by the beginning of the 18th century (Broadberry *et al.*, 2018; Broadberry, 2021). There is still a danger of continuing the

‘Occidentalism’ in scholarship that sees the West as always having been ‘modern’ and ‘superior’ (Goody, 1996).

Against this background a number of questions arise about the relationship between accounting and economic development in China, including:

- What are the implications of the state of the accounting system? If any.....?
- Double-entry bookkeeping (DEB) first appeared in Italy around 1300 AD and Pacioli wrote the first printed exposition in Renaissance Venice in 1494 (e.g. Macve, 1996). Was DEB a precondition for modern economic development in the West (the Weber-Sombart thesis that was challenged by Yamey, 1949 but is still championed e.g by Soll, 2014)? And correspondingly in China?
- In the history and cultural context of accounting did China develop its own ‘Chinese-style double-entry bookkeeping’ (CDEB) or was it still primarily a single-entry system with only some ‘doubled entries’ as functionally needed for credit transactions (c.f. Guo *et al.* 2011; Sangster, 2016)?
- How much can we find out about how the accounting was done before the forced opening to the West in the mid-19th century?

The recent increasing availability of Chinese archives of original accounting records and other historical sources has enabled us to begin to research the last two of these questions. That is our primary focus and contribution here but we add some observations on how our findings may illuminate the wider questions too (c.f. Macve, 2002).

In the remainder of the paper we first briefly review prior *archival* research into Chinese accounting before 1850—which had not found any *evidence* of CDEB—(Section 2) before introducing our own theoretical conceptualisation of the stages of bookkeeping through history (Section 3) and of how we view Western DEB for comparison with potential CDEB (Section 4). We then examine two accounting manuals from the late Qing but which probably reflect practice from before 1850 (Section 5) and re-examine and challenge previous claims about the evidence for the accounting at the Zigong brine-wells (Section 6) before discussing newly published evidence from the surviving accounts of the Fēngshèngtài salt traders of Henan province, spanning 1854 to 1881, and new evidence we have recently discovered from accounts and records of Anhui merchants (dating back to 1590) in Section 7. Section 8 summarises our findings and our revised picture of China’s indigenous bookkeeping and accounting—which we tentatively argue could in some instances have developed CDEB by the 16th century—and concludes by suggesting that further research is needed to fully substantiate them.

2. Prior archival research into Chinese accounting before 1850³

Yuan et al. (2017) concluded their study of the indigenous accounting practices found in the massive archive of account books⁴ of Tǒng Tài Shēng [统泰升]⁵ (‘TTS’), that relate to its

‘merchant-banking’ business in Hebei province from 1798-1850, by observing:

Despite the difficulties of fully penetrating the precise accounting systems being employed by TTS as its business grew, the archive of its surviving books—unparalleled in its extent—that we have described and illustrated here show that Chinese accounting was able to adapt to the increasing scale and complexity of its merchanting and related financial business during the late 18th and early 19th centuries without there being obvious problems resulting from the lack of DEB (as least as far as can be told from the available TTS books)...

While some speculation about the missing contents of the complete archive is inevitable,⁶ this does not alter our basic contention that the surviving TTS books do not show any evidence of a fully integrated bookkeeping system at all three levels⁷ that has been claimed for the purported [Chinese equivalents of DEB]⁸ presented by earlier authors (but without any primary evidence). Nevertheless they contained the information needed to be able to monitor customers’ debts and to summarise daily transactions into periodic results as needed for TTS’s business purposes...⁹

This paper is now able to report our explorations of other indigenous archives (some of which have only recently become available), including in particular here a reappraisal of those of the Zigong brine wells in the early 20th century, and our analysis of the accounts of

³ Apart from some of the materials to be discussed here, of the original archival materials listed in Appendix II only TTS and the Shanxi banks (*shānxī piàohào* [山西票号]) can definitely be dated before 1850. (For discussion see Yuan et al., 2017 and Wu, 2016.)

⁴ They noted that it would be valuable if future research in other archives as they are discovered could reveal contracts, business correspondence, minutes of meetings etc. that can be linked to business accounts to shed more light on issues such as profit sharing, accounting for labour, and implications of taxation (c.f. Auyeung et al., 2005; Zelin, 2009).

⁵ Unlike most previous authors, we have standardized the presentation of Chinese technical terms and their translation, and of individual names, wherever possible, using the format: *pīnyīn* ([拼音] = ‘standard modern Romanized spelling with tone marks’) or equivalent, at least at the first time they appear, as an aid to reading by those not familiar with Chinese. We also transcribe the original texts into the modern, simplified characters now standard in PRC.

⁶ (*Present authors’ note*) A visit to the National Library revealed that a further 28 of the missing books have now been found in the National Library and await cataloguing and digitizing. This leaves 10 unaccounted for (together with some that may have been deposited in addition to the original gift). We have not been able to revisit the Library due to the Covid-19 pandemic.

⁷ (*Present authors’ note*) The ‘three levels’ refer to day books / classified ledgers / financial statements of profit and loss and net assets (as set out in Yuan et al. 2017).

⁸ (*Present authors’ note*) In Yuan et al. 2017 ‘CDEB’ (‘Chinese double-entry bookkeeping’) was used as the label for the systems claimed by previous authors to be equivalent to Western DEB. For the reasons given below about how DEB should be defined we now distinguish ‘doubled entry’ and ‘double-entry’ bookkeeping (c.f. Sangster 2016) and will argue that some indigenous Chinese systems did probably attain the essential structural characteristic of DEB identified by Mattessich, 2000 and discussed below (albeit not the Western DEB *form* of processing), so that we can now legitimately label them as ‘Chinese-style double-entry bookkeeping’ (CDEB).

⁹ (*Present authors’ note*) A high level of bookkeeping sophistication was reached in the maintenance of the accounts of customers of the moneylending side of the business (see Figure 4 at p.413 in Yuan et al. 2017).

merchanting businesses in Anhui province between 1590 and 1902. We also review some 19th century accounting manuals that have become available and illuminate practice, although we must note that, compared to Europe (e.g. Dobie and McCollum-Oldroyd, 2020) there continued to be much less ‘standardisation’ of bookkeeping and accounting practice around any particular identified methods but rather a variety of individual business approaches (Camfferman, 2017) and we do not know how the individual accountants learned their craft.¹⁰

Several previous authors, generally following Guo (e.g. 1988), have identified the following features of Chinese commercial bookkeeping: doubling of entries where credit transactions in a day book require an additional entry in a customer/supplier account, labelled *sānjiǎozhàng* [三脚帐] (‘three feet [or ‘lame’] accounts’); doubling of all transaction entries, labelled *sìjiǎozhàng* [四脚帐] (‘four feet accounts’); comprehensive linking of entries to create an interlocking system of final accounts, labelled *lóngmén zhàng* ([龙门账] (‘dragon gate [or ‘embankment’] accounting) or *tiān dì hé* ([天地合] (‘heaven and earth matching’)). We refer to these where relevant in subsequent sections: however it is important to note that these labels are not utilised in the accounts to be found in the original archives until the 20th century but appear to originate with scholars in the 1930s (See Appendix II; Hoskin and Macve, 2012, Appendix III).

From government accounting in the public sector in ancient times came the labelling of ‘four column’ [or ‘four pillar’] accounting (*sì zhù jiésuàn fǎ* [四柱结算法]) which reconciles the opening balance on an account with the closing balance via the incoming and outgoing transactions for the period. This approach was later adopted in commercial accounts (e.g. as illustrated in Yuan and Macve, 2017, Picture 4 which also shows the typical layout of an account with ‘in’ entries in the top half and ‘out’ entries in the bottom half, together with the opening and closing balances.)¹¹

¹⁰ Giersch (2014; 2020) argues that by the end of the 19th century there was increasing sophistication of accounting and demand for skilled accountants in Yunnan province. We have seen the day-book from 1859 that he refers to (2014, p.56) but this is only a simple record of transactions.

¹¹ Professor Guo Daoyang has argued that adoption of the ‘four column’ (or ‘four pillar’) method in government accounting during the Tang and Song dynasties (618-907AD; 960-1279AD) represented an important change in the Chinese *conceptualisation* of what the accounting should be ‘naming and counting’ and for what purpose (c.f. Ezzamel and Hoskin, 2002). As he has indicated in conversation (November 2011), initially each period’s account had been regarded conceptually as strictly separate and so had just the ‘Three Columns’ of ‘in’, ‘out’ and closing balance: opening balances had to be confirmed as required from the preceding period’s books. However problems of loss and theft of records led government accountants to recognise the need for continuous records and to incorporate the closing balance, that strictly belonged to the previous period’s account, as the opening balance in the new period’s books, thereby creating the ‘Four Column’ system. (If there had been any

3. Stages of bookkeeping through history.¹²

In order to assess the developments in Chinese bookkeeping for comparison with the West, our outline classification here of bookkeeping stages is based on distinguishing continuous transaction records of '*flows*' from periodic inventories (statements of what is owned and owed) that list '*stocks*'; and on whether the accounts record only physical measures or also monetized amounts.¹³ While the stages below might suggest some continuous evolution towards more sophisticated bookkeeping forms, in fact bookkeeping systems of different kinds might co-exist or might revert from more complex stages to simpler forms (e.g. Dobie and McCollum-Oldroyd, 2020).

A basic engineering equation is that periodic *flows* equal changes in *stocks*. So the change in the volume of water in a tank can be computed either by comparing the opening and closing levels or by tracking the quantities of water added or drawn off during the period. Given the other elements of the equation (and assuming the tank is watertight) the missing one can always be arithmetically computed.¹⁴ So, for example, given the opening level and the net total of inflows and outflows the closing level can be computed. However, a 'double-entry' water meter would track each flow and at the same time update the recorded level in the tank—which could then be confirmed and/or 'audited' by inspection at the end of the reporting period. Such a system contains what is strictly redundant information but this provides a control over accurate processing.

Correspondingly accounting systems all potentially allow these computations to be made for the items recognised in their accounts but with varying degrees of integration and monetization of actual stock and flow records. For some items the choice between relying on periodic checks of the levels ('inventories') or on continuous recording of flows ('transactions') is fairly arbitrary, but for knowing how much debtors owe (or is owed to trade and other creditors) it is essential to track the inflows and outflows as the closing

commercial accounting books then one might have expected them to need 'four column' accounts to keep track of debts due from period to period, as illustrated in Picture 4 of Yuan and Macve, 2017.)

¹² Toms and Fleischman (2015) offer a theory of accounting change that they label the 'Accounting Transaction-Based View' ('ATBV'). However in their taxonomy of developments (Table 4) they place Western DEB as the first stage, sufficient for 'arms-length transactions between merchants'. Clearly this does not hold for Asia (and in fact not for Europe nor the US)—c.f. Macve, 1996; Hoskin and Macve, 2021.

¹³ Cash holdings may be regarded as either a physical quantity measure (*specie* / bullion) or a monetized measure according to the context.

¹⁴ An anonymous conference reviewer has pointed out that Robert Sterling indicated that other factors such as temperature and atmospheric pressure might affect volume and these also need to be assumed to be held constant.

balance is not independently directly observable (see also Bromwich *et al.* 2010, fn.25). A ‘belt and braces system’ integrates the two types of records, continuously or periodically, as in full Western DEB which also fully monetizes all the recorded items.

The broad conceptual stages historically of non-governmental accounting (c.f. Macve, 2002) are:

1. *Physical* lists naming and counting valued objects and recording {opening balance + inflows – outflows = closing balance} (which we label ‘the engineering equation’). As found in Ancient Greece (e.g. for wine, grain and money) (Macve, 1985); and in China (*sì zhù jiésuàn fǎ* [四柱结算法] = ‘4 column’ bookkeeping).^{15, 16}
2. Some functional *doubled* (or ‘dual’ [Sangster, 2016]) money entries (for credit sales to track debts / for banks to track customer loans etc.). This seems equivalent to the Chinese method(s) that have been labelled as *sānjiǎoshū* ([三脚书] = ‘three feet bookkeeping’) or *bǒjiǎozhàng* ([跛脚账] = ‘lame accounts’).^{17, 18}
 - 2(i) Periodic final accounts still comprise a calculation of profit or loss based on the money transactions only without a ‘balance sheet’. This requires converting the various currencies in use (e.g. copper and silver) into one *numéraire* or ‘money of account’.
 - 2(ii) The credit transactions and balances are integrated in producing periodic final accounts that include a ‘balance sheet’, but this is limited to just monetary assets and liabilities (i.e. including only cash, debtors and creditors) and the corresponding amount of the owners’ ‘equity’ or ‘capital’.
3. Fully monetised accounts including inventories of current assets (e.g. unsold merchandise) and fixed assets (e.g. furniture and equipment) in a common *numéraire* from which can be produced summary ‘balance sheets’ showing ‘Net assets = Equity’.¹⁹ Combinations of increasing complexity are now possible:
 - 3(i) can calculate a period’s ‘income’ simply as the *net* change in net assets found by comparing successive balance sheets (after allowing for any distributions to or additional contributions from equity owners), using the ‘engineering equation’. Yamey (e.g. 1949) has argued that this is an effective alternative to full DEB for tracking the accumulation of capital that Weber identified as a crucial factor in enabling Western rational capitalism (see Macve, 1996), although it does not provide analysis of the *causes* of the overall change (c.f. Penman, 2010). As the assets will normally include customer debtors, this must mean the business had entered sufficient ‘doubled entries’ (e.g. cash + debtors; or some trading account +

¹⁵ Recognising that Chinese nouns do not distinguish ‘singular’ and ‘plural’ forms it is possible to translate e.g. *zhàng* [账] as either ‘account’ or ‘accounts’.

¹⁶ For an introduction to the history behind the labels that have been given to various Chinese bookkeeping systems see Section 2 above and Hoskin and Macve (2012) Appendix III.

¹⁷ We use ‘Three Feet’ (and correspondingly ‘Four Feet’ for the full CDEB system) as the translation for this bookkeeping system, to avoid confusion with the ‘Three Column’ and ‘Four Column’ methods for calculating the balances on individual accounts.

¹⁸ Lowenstein and Cao (2023) have identified doubling both of credit *and of cash* transactions in ‘trading’ accounts at C19th Fēngshèngtài, so these accounts reach beyond the threshold of stage 2. And although no ‘balance sheets’ have survived they argue (pp. 31-3) that circumstantial evidence from that period suggests that the accounts may have reached stage 3(ii). See Section 7.1 below.

¹⁹ The breakthrough of attaching monetary values to non-monetary assets opened up an ever expanding range of what could be ‘named and counted’. So now these include intangible assets and even ‘the present value of future profits’ (as ‘goodwill’). See e.g. Bromwich *et al.* (2010).

debtors—as at TTS (Yuan et al. 2017)) in order to establish what customer debts were still owed at the ‘balance sheet’ date and to check any customers’ claims as to how much they owed. Correspondingly for creditors.

3(ii) if all transactions in all assets (and liabilities) are also integrated the system can produce analysed ‘income statements’ as well as ‘balance sheets’. This seems equivalent to the Chinese method(s) that have been labelled *sìjiǎoshū* ([四脚书] = ‘four feet accounts’).²⁰

4. Full Western DEB enables production of detailed income statements and balance sheets as part of an integrated and fully cross-referenced system, in a set of paginated and indexed books, where the key DEB account book (following Pacioli’s 1494 exposition) is the ‘journal’ which records transactions (and the various bookkeeping transfers and valuation adjustments) in chronological order, explains their nature, and specifies which ‘ledger’ accounts are to be ‘debited’ and ‘credited’. Once decisions have been made (or conventions followed) on what amounts represent continuing assets and liabilities to be transferred to the next period, and on how these are to be measured in money terms (or ‘valued’), open ledger accounts for cash, for debts etc. (‘personal’ accounts) and for other assets (‘real’ accounts) constitute the closing balance sheet net assets. ‘Nominal’ accounts for elements of income and expenditure are closed at the period-end to produce the summary income statement (traditionally the ‘Profit and Loss account’) which is in turn closed into the Capital (or Equity) account in the closing balance sheet. These processes are nowadays fully computerised but follow the same structural logic.²¹

So systems in sub-category 3(ii) above, which record the double nature of *all* transactions in money terms but do not have the built-in processing checks of a fully cross-referenced, indexed DEB system (as in stage 4) can produce equivalent income and net asset summaries and analyses to DEB and meet Mattessich’s (2000) criterion for the structural content of DEB (see Section 4 below). And hybrid forms in sub-category 3(i) above may also be acknowledged as effectively providing the equivalent content.

In tentatively assigning surviving Chinese accounts to these various stages (see Appendix II) we have adopted a strict requirement of requiring direct evidence of inclusion of the relevant features in the accounts. Circumstantial evidence from other sources may indicate the probability that a more advanced stage had been reached (see especially section 7 below). Moreover, in China (e.g. in TTS and at Zigong) we must note that some items in the accounts were left in *physical quantities* for subsequent (and perhaps repeated) combination with their

²⁰ For discussion of the description that has been labelled *lóngmén zhàng* ([龙门账] = ‘Dragon Gate’ (or ‘Joining-up the Embankment’) bookkeeping), also known as *tiān dì hé* ([天地合] = ‘Heaven and Earth Matching’), see Section 6 on Zigong below and Hoskin and Macve (2012) who argue that the various names were generally given later and do not refer to indigenous methods for which there is any historical evidence.

²¹ Historical examples of Western DEB may also utilise other accounts for gains and losses additional to those included in the Profit and Loss account and also close them to equity capital (e.g. de Roover, 1956; Goldthwaite, 2015). Modern IASB standards also split the total of a period’s reported income (labelled ‘comprehensive income’) into ‘Profit and Loss’ and ‘other comprehensive income’ (see e.g. Macve, 2022, Appendix A). Such approaches can also be classified as 3(ii) (in China) or as 4 (in the West).

prices by speedy abacus calculation when required to get *monetary amounts*. So we must be prepared to acknowledge a system as being conceptually in sub-category 3(ii) even where the detailed written records (prior to periodic summarization) are still awaiting such calculation, i.e. conceptually the abacus calculations are part of the bookkeeping and accounting system and not every monetary amount may be recorded ‘in the books’ (Yuan et al. 2017). The normal practice (as in all the accounts we have examined here) of using the special commercial forms of numerals called *Sūzhōu mǎzì* [苏州码字] would assist such speedy abacus calculation (Yuan et al. (2017) Appendices 2 and 3; Lowenstein and Cao (2023), 17-18).

4. What is Western ‘double-entry bookkeeping’ (DEB)?²²

Given the conceptual stages outlined above, Yuan et al. (2017) have argued as follows (p. 402) as to what would be required for Chinese bookkeeping to be ‘essentially comparable’ to Western DEB.

While there are several subsidiary features of techniques of writing and processing the ‘books’ that may vary within medieval Western bookkeeping systems (e.g. Sangster, 2016), the essence of the commercial accounting by DEB that captivated Weber and Sombart is that the rigid requirements for *completely* doubled entries (labelled ‘debit’ and ‘credit’ in the West) produce a ‘closed system’ (e.g. Mattessich, 2000, Introduction, p.13), that provides as periodic precipitates a Profit and Loss Account (income statement) and a Balance Sheet of assets and liabilities (see also Goldthwaite, 2015, pp. 618-9). These financial statements are widely interpreted as summarising a business’s progress and the state of its capital (c.f. Macve, 1996).²³ Claims have correspondingly been made that in China bookkeeping processes had indigenously evolved by the 17th-18th centuries to require *comprehensively* doubled entries and enable the preparation of corresponding statements of *jìn - jiǎo* ([进 – 缴] = ‘income – expenditure’) and *cún - gāi* ([存 – 该] = ‘assets – liabilities’) respectively from the accounts in a *zǒngqīng* ([总清] = ‘general clearing ledger’) (see e.g. Aiken and Lu, 1998).

However, these previous claims (i.e. that traditional Chinese bookkeeping and accounting had reached stage 3(ii) in our classification), although widely repeated, have not been supported

²² Lane (1977) reviews the range of scholarly views on how extensive and sophisticated the recording of doubled (or ‘dual’) entries had to be historically in Renaissance Venice, Florence and other Italian cities to constitute a double-entry system. For our purposes the distinguishing feature of double-entry (as in our stages 3(ii) and 4) is the full integration of the accounts for ‘flows’ and ‘stocks’ which constitutes Mattessich’s (2000) ‘closed system’. This is the system which it has been claimed is found in China as *lóngmén zhàng* ([龙门账] but c.f. Hoskin and Macve (2012). ‘Full DEB’ (our stage 4) also features the full cross-referencing of entries in paginated and indexed books as recommended by Pacoli.

²³ (*Present authors’ note*) For modern economic analyses of ‘capital’ and ‘income’ see e.g. Bromwich *et al.* (2010).

so far by any first-hand evidence from actual accounting records. Aiken and Lu's example (1998) is only illustrative rather than an actual archival record.²⁴ We must therefore ask how far the archival evidence shows that periodic summary financial statements in China were prepared on the basis of a comparable integrated bookkeeping system that included sufficient comprehensively doubled entries that it thereby enabled those statements to be prepared as a direct output of that system, i.e. had reached stage 3(ii)²⁵ above and could fulfil the *functions* of DEB albeit without the Western *form*.²⁶

In this view of 'What is DEB?', although the presence of integrated and cross-referenced real, personal and nominal accounts may be the most significant medieval advances in Western bookkeeping technique, nevertheless, as the nominal accounts (e.g. for sales, purchases, expenses) are conceptually only temporary subdivisions showing the sources of changes in equity, they do not add to the underlying logic of the 'closed system' (as in stage 3 above) where $\text{Equity} = \text{Assets} - \text{Liabilities}$ and where Income (allowing for dividends to owners etc.) represents changes in Equity (as Mattessich, 2000, Introduction p.13 observes)—see Macve (2022, Appendix A) for analysis of the structural relationships.

However Sangster (2016) imposes further processing conditions for recognising DEB. In the supposed Western evolution from single-entry to DEB he recognises an intermediate stage of what he labels 'dual entry', where there are the functional reciprocal or 'doubled' entries needed for credit transactions and their settlement (as in our stage 2 above) but the *location* of the corresponding account in the books is not identified. In his view it is the *cross-referencing* of each side of the entry *to identify the location of the corresponding account* that he regards as crucial for there to be fully developed DEB.²⁷ His emphasis is on the *form* rather than the *structure* and *function*.

²⁴ The character 帳 for *zhàng* (now meaning 'curtain/tent') is used instead of the normal PRC simplified character 账 for *zhàng* ('account'), which is used by Yuan and Ma (2010 *in Chinese*) and by the actual 18th / 19th TTS records (Yuan *et al.* 2017), and which incorporates the 'phonetic derivative' of 貝 for *bèi* ('cowrie [shell]')—i.e. the original medium of currency in antiquity—in order to provide the 'radical', i.e. the representation of the meaning. In discussion with Professor Guo Daoyang, he has explained that in earlier times 帳 was the character used as its incorporation of the sign for 'tent' is believed to represent the tents of the Emperors' travelling tax collectors.

²⁵ In a DEB system (as also in stage 3(ii) above) some elements may be computed only at a reporting period's end and entered as 'closing adjustments', e.g. depreciation, bad debts, impairments and other provisions and (depending on the system in use) closing inventory of unsold goods and production work-in-progress. (See any modern introductory financial accounting textbook.)

²⁶ As shown in Yuan *et al.* (2017), TTS does not meet these criteria and we would classify it at stage 2(i) above. Given that none of the archives we examine below include recording of *industrial* assets (such as the brine wells at Zigong) the Chinese accounts did not include all the *contents* of modern DEB accounts.

²⁷ The medieval evolution of such indexing and ordering of books, beginning in European universities with the Bible, is traced in Hoskin & Macve, 1986. Sangster (2016) ascribes its adoption in commercial account books to

Such efficient and accurate processing requires full pagination and indexing of the DEB books for cross referencing (nowadays built into the logic of computer systems). Sangster (2016) argues that before this there was often only ‘dual entry’ within banks’ accounts (i.e. as at stage 2 above) but not full ‘double-entry’ (DEB). It is clear that Chinese accounting, as described by previous authors, and as found in surviving examples (as illustrated by the TTS records in Yuan et al. (2017) and by those we analyse below), did not have the indexed and page-numbered books that Pacioli recommends and that are needed to satisfy Sangster’s criterion²⁸—but we would not regard this processing technique as essential to what Mattessich correctly identifies as the ‘logic’ of DEB; and we would accept Chinese accounting as having the essential structure and functional features of DEB *if* it could be shown that there was indeed integration across the three levels of the books (i.e. day books / classified ‘ledger’ accounts / financial statements of profit and loss and net assets), as has been claimed by other authors (e.g. Aiken and Lu, 1998). This would be sufficient to achieve Mattessich’s ‘closed system’ and provide the functional feature of DEB that has generally been regarded as the most significant, i.e. its ability to systematically track ‘profit’ and ‘capital’ (albeit that it is not the only method by which this can be done, e.g. Macve, 1985).

We are therefore focussing here on identifying how far the archives we examine show evidence of ‘doubled’ (i.e. Sangster’s ‘dual’) entries not only where these are functionally required for credit transactions to track the status of debtors, but also where they are linking transactions and closing balances for other kinds of assets as well, i.e. are representative of stage 3(ii) above). Such full ‘Chinese-style double-entry bookkeeping’ (CDEB) would satisfy Mattessich’s criterion for equivalence with the level of integration achieved by the particular processes uniquely associated with the *form* of Western DEB.

In the following sections our investigation therefore now focuses on whether the records we examine indicate that stage 3(ii) was reached before Western influences after 1850 might have steered Chinese accountants towards the *form* of integration that began to become familiar from increasing exposure to examples of Western DEB. We will show (in section 7) that at least stage 3(i) (and possibly stage 3(ii)) was achieved by the Anhui merchants but only in these merchants’ case can it be clearly shown that this took place before 1850 and probably as early as the late 16th century. The accounting manuals we review in the next

Florentine legal requirements but without explaining *why* courts would have demanded such full DEB books in evidence.

²⁸ However, Chinese account entries were dated which would reduce effort in searching for matches.

section also indicate that recommendations based on a stage 3(ii) system were being made in the 19th century and probably as early as 1828.

In Section 6 we then report on our further investigation of the well-known Zigong accounts, where we argue that the evidence to date does not show convincingly that they had advanced beyond stage 2(ii) above. While the well-known Shanxi banks (*piàohào* [票号]) might also be argued to have reached stage 3(ii) in the early 19th century, nevertheless as their business essentially comprised only loans and other monetary assets this is also effectively only stage 2(ii) (see Wu, 2016).

5. Two accounting manuals from the C19th Qing era.

5.1 Shanxi manual dated 1828²⁹

This manual, handwritten with a brush pen and titled ‘Handbook of essential knowledge for doing business’ was found in Shanxi province in 1997. It was published in Guangxu 20, i.e. 1891, although the preface states that it was written in Daoguang 8 = 1828/9.³⁰

It focusses primarily on the accounts needed for running a pawn shop (including an income and expenditure day book and accounts for pawn, borrowing and lending). But it also contains instructions for ancillary activities and for more complex businesses, such as merchandising grains and acting as a bank exchanging money, as well as for a restaurant or food store. Illustrations of transactions in the day book(s) (*liúshuǐzhàng* [流水账]) are shown with the traditional layout of receipts (*shōu* [收]) in the upper half and outgoings (*chū* [出]) below in the lower half. Daily summaries are recommended (or at least every three or five days) of the day books.

Amounts for income and outgo (including salaries and various expenses such as interest, transport, transactions with government officials and dinners hosted) and for balances of goods, copper, silver and grains (e.g. black beans, millet and cotton) and other goods should be summarized monthly and annually, including their prices and value in silver. (‘Do not

²⁹ We are grateful to Professor David Faure for providing us with a copy of this handwritten manual. It is now published (*in Chinese*) in *交易须知*, 2013 (Volume 1, pages 17-44). We are grateful to Dr Yimin Zhao for assistance with the translation.

³⁰ However there are internal references in the numerical examples to dates such as Xianfeng 11 (= 1861) and ‘some year in Xianfeng’s reign’ (*mǒunián* [某年]) (i.e. between 1850 and 1861). Also (at page 4 line 3) to April 1, Tongzhi 1 (同治元年) = 1862). So, perhaps the 1828 edition had also been updated in some other respects before the 1891 publication, possibly relecting new Western influences.

confuse the book for buying grains and the book for selling grains with each other.’)³¹

Records of debtors and creditors are needed. These summaries should be kept secret from outsiders. The structure of the books and the bookkeeping process is illustrated in Figure 1.³²

*****Insert Figure 1 about here*****

This recommendation for reconciling by ‘triple posting and triple balancing’ (*sān tóu sān hé* [三投三合]), i.e. checking that these various books all reconcile, so as to ‘incorporate clearly both the previous accounts and the new income’ in order to analyse the operating costs, is acknowledged to be accused by many non-experts of being a counsel of perfection that appears to distract attention from actually making money,³³ but it is argued to be only prudent and superior to the ‘common’ practice of just comparing the values of closing inventory and opening capital to reckon profit or loss (i.e. as in our stage 3(i)).

There is a recommended procedure for dealing with errors that are detected when the cross-checking between the books is undertaken, by creating a dated contra entry in the *liúshuǐzhàng* (which will also be reminder of who was responsible for the error).

At least annually there should be included a valuation of the furniture. However, there is also advice to keep the information about all assets secret in an internal account and hidden away (wrapped in cloth and stored in a cabinet)³⁴ so as not to let outsiders know how wealthy the business is.

Much of the detail is about how to keep the shareholders’ accounts, including both those who have subscribed money and those whose capital is contributed as ‘human resource shares’ (*rén gǔ* [人股]) (and how to value the latter contributions). This class of shareholders who work for the business are also required to deposit 200 *liǎng* of silver as a guarantee of honesty (*hùshēnyín* [护身银]) There are also details about how to write and file the related contracts with individual shareholders and the copies that are to be provided to them.

³¹ The Chinese words for buy (*mǎi* [买]) and sell (*mài* [卖]) look similar and are pronounced almost the same (in some regions identically, i.e. with the same tone) so there is risk of confusion. (More confusion can come from the fact that in Chinese ‘borrow’ and ‘lend’ are both *jìè* [借].)

³² Where customers prefer to record short-term transactions ‘on the slate’, i.e. just on erasable boards (*shuǐpái* [水牌]) an account of ‘temporary deposits’ should be kept. (See also 5.2 below: instruction #1.)

³³ ‘The cooked meat is in the wok’ (*ròu làn zài guō lǐ* [肉烂在锅里]) (i.e. it is obvious how much one has got) and ‘What is the meaning to record books clearly if you cannot earn money?’

³⁴ Along with the shareholder book (*rùběnzhàng* [入本账]) and the profit and loss account (*wànjīnzhàng* [万金账])—see notes to Figure 1.

A final chapter is devoted to setting out twenty templates of contracts on transportation, invitations and delivery notes needed in running a business.

Example transactions and valuations of different inventory items are listed, and there is clear guidance on how the accounts are to be regularly summarised (giving numerical examples). There is explanation of how the accounts are linked into a set of period end summary financial statements (although the numerical examples of transactions etc. are not carried through to that final stage). It seems clear that there is a structure of understanding that the change from opening to closing net assets in a period must also equal the balance of recorded income and outgo. So we would classify this as being a 3(ii) system that follows the principle of ‘four column’ accounting (*sì zhù jiésuàn fǎ* [四柱结算法]) and provides an illustration of full CDEB.

5.2. A manual from Hebei

This was copied (but incompletely and in a confused order, which makes it difficult to follow) from a book published in Shanghai by a famous newspaper *shēnbào* [申报] during the reign of Guangxu, so it is from some time between 1875 and 1908.³⁵

It is a business handbook of 28 pages dealing with a pawnshop. There is no labelling of its particular accounting system but, while the accounting structure is similar to that in the Shanxi manual dated 1828, it has been independently written and there are differences in emphasis and detail (e.g. in the names of the various account books). But it is also based on the principle of ‘four column’ accounting (*sì zhù jiésuàn fǎ* [四柱结算法]) to show how one keeps the daily records and summarises them to produce the year-end accounts comprising profit and loss (*yíng kuī* [盈亏]) and a ‘balance sheet’ of *cún - gāi* ([存 - 该] = ‘assets – liabilities’).³⁶

Its individualised approach is to use 10 characters with different meanings: 5 positive and 5 negative:³⁷

1. 原 (*yuán* = ‘original’) for opening balances

³⁵ The copy was found among a collection of business books relating to Shanxi merchants. Its original source can no longer be found (and is not in the National Library). It is held in Shanxi and has been photographed and published in 2018 and been discussed (*in Chinese*) and rewritten into simplified Chinese by Professor Wang Lingling and Wang Zhongliang in 清代晋商典当业会计账簿组织探析 ISBN: 1004-0994 (2018) 03-0132-6. For some reason that is not clear they date it to 1895.

³⁶ Closing *gāi* ([该] = liabilities) are not specifically mentioned but the use of accrual for interest due (see below) implies that the closing position includes liabilities.

³⁷ The numbering is ours and not in the original.

2. 进 (*jìn* = 'in')
3. 回 (*huí* = 'return')
4. 利 (*lì* = interest / benefit)
5. 足 (*zú* = 'ample') i.e. profit from exchanging money
6. 当 (*dàng* = 'pawn')
7. 出 (*chū* = 'out')
8. 用 (*yòng* = 'expense')
9. 耗 (*hào* = 'use')
10. 存 (*cún* = 'assets on hand')

To calculate the closing *cún* the formula is: $1+(2+3+4+5-6-7-8-9) = 10$

Accruals are required for interest receivable and owed on outstanding lending and borrowing, indicating a more sophisticated understanding of the 'period' concept in accounting than has been found elsewhere. For this kind of traditional business it seems unlikely that these practices would have been channeled from Western influences, unlike in the emerging modern banking institutions and major new industrial businesses like railroads, shipbuilding etc. (c.f. Peng and Brown, 2016).

A choice must be made as to whether the accounting *numéraire* or 'money of account' is copper coins or silver and there are detailed instructions for reviewing and revising the conversion rate used between copper and silver in preparing the year-end accounts.

The accounting for 'real' assets remains unclear. Two approaches to expenditure on furniture etc. are taken, treated either as *yòng* [用], i.e. written off, or as *chū* [出], which may represent 'capital expenditure', but if so the corresponding asset accounting that would be required is not explained (at least in the pages that have been copied). There do not appear to be any other significant assets (unlike in a trading company) so that the accounting (as in the Shanxi *piàohào*) may overall only be at our level 2(ii).³⁸

Its other instructions include:

1. Five large reckoning boards³⁹ (*dàshuǐpái* [大水牌]) which can be written on and easily erased, with the 10 characters referring to aspects of the business, should be

³⁸ However some pages are missing. There must also have been some system for issuing tickets to customers for their pawned goods and recording where they were stored. Many such tickets survive from the Ming-Qing era, with templates often created by wood-block printing. However this manual does not mention them,

³⁹ Surviving examples are common and may be written on black or white wood or on tin (similar to a Western chalkboard or 'slate').

maintained. These are used a) for recording amounts due to creditors (possibly as a reminder to pay) and b) for further calculating and checking the amounts to be posted every five or ten days (and there is also one small *shuǐpái* for calculating and checking monetary amounts).

2. From these various accounts summaries should be made every 5 or 10 days, every month, and every year.
3. How to maintain the shareholders' accounts.
4. When to use *Sūzhōu mǎzì* [苏州码字]⁴⁰ in writing numbers i.e. in the rough daily books of payments and receipts (*chūrùliúshuǐzhàng* [出入流水账]) for speed and when they are just for doing calculations such as summarising. But for accounts to show to others and the shareholders' accounts one must use standard Chinese number characters.
5. Detailed instructions on how to check branch accounts (e.g. that transfers of funds out (*chū*) from the main shop match inward receipts (*jìn*) in the branch's records) and on how to incorporate amounts from the branch books in order to consolidate them for the whole business.

However, unlike in the Shanxi manual discussed in Section 5.1, there are no numerical examples of transactions and their recording.

These two manuals therefore exhibit familiarity with the principle of what we have called Chinese-style double-entry bookkeeping (CDEB) which, in the case of the Shanxi manual, clearly integrates the recording of transactions in real assets (grains, furniture etc.) with the preparation of the period-end 'balance sheet' (our stage 3(ii)).⁴¹

It is notable that neither manual covers 'industrial accounting', whereas after 1850 and under Western influence Chinese enterprises began to create industrial firms,⁴² which reinforces our view that the manuals illustrate traditional indigenous accounting practices.

⁴⁰ See Yuan et al. (2017), Appendix 2.

⁴¹ As the assets dealt with in the Hebei manual are only the debts created in a pawnshop business it, like the Shanxi *piàohào*, is strictly only at stage 2(ii). See Appendix II.

⁴² <https://chinadialogue.net/en/energy/9918-the-historical-roots-of-china-s-industrial-revolution-2/> (accessed 3.3.2023).

We now consider various surviving accounting archives and the stage of bookkeeping that they probably illustrate.

6. Zigong

Auyeung et al. (2005) examine the accounting system in the early 20th century at the long-established Zigong [自贡] brine wells in Sichuan Province, which also had external shareholders who funded the considerable long-term investment needed in sinking the very deep wells and building the derricks for raising the brine.⁴³

As Auyeung et al. 2005 explain, the Zigong wells used a form of bookkeeping that kept track of credit transactions and closed the accounts with an overall reconciliation of ‘income-outgo / assets-liabilities’ (*jìnjiǎocúnqiàn* [进缴存欠]), reconciling income-outgo (*jìnjiǎopǐndié* [进缴品迭]) and the change in recorded assets and liabilities (*cúnqiànpǐndié* [存欠品迭]). In this respect the approach is like the method that has been labelled *hé lóngmén* ([合龙门] ‘closing the dragon gate’)⁴⁴ but the *cún* and *qiàn* appear to be limited to just monetary assets and liabilities.

There are the necessary functional doubled (or ‘dual’) entries for maintenance of debtor, creditor and shareholder accounts (as at TTS), and shareholders are clearly distinguished from other finance providers such as lenders. But beyond that we have not found evidence of doubled entries in processing transactions so, while there is evidence of what has been labelled *sānjiǎozhàng* [三脚帐] (our stage 2(ii)) we do not see any evidence of *sìjiǎozhàng* [四脚帐] (our stage 3(ii)), i.e. we see no clear evidence of CDEB.

An analysis of the ‘monthly reports’ shows a listing across the page of various items of income and expenditure but with limited financial measurement involved, as the salt and brine were sold at standard prices under the Imperial monopoly so just the quantities are stated. There are also listings of ‘assets’ and of ‘liabilities’ (including the amounts due to be shared among the shareholders) in what may be seen as ‘balance sheets’ but they contain only monetary items (debtors, creditors and shareholder claims) and no amounts for ‘real’ items such as the investment in sinking the wells and in building and equipping the enormous derricks for which the skyline of Zigong was famous. Nor for shorter term items such as

⁴³ For comparison with practices in British coal-mines in the 18th and 19th centuries see e.g. Fleischman & Macve, 2002.

⁴⁴ Or ‘joining the two ends of the embankment’ (c.f. Guo et al. 2011: see Hoskin and Macve, 2012, Appendix III for further discussion of the etymology and sources of this 20th century labelling). The Zigong accounts themselves do not use this term.

woks, working animals, and daily food supplies etc.. Although *zào* [灶] means a stove / cooker, it appears only as part of a debtor business's name such as *róngchāngzào* ([荣昌灶] = 'Rongchang Cookers') i.e. a brine-cooking business which has probably been supplied with brine and has not yet paid.⁴⁵ There is no physical *zào* being identified. All such assets are treated as expenses, i.e. 'written off' as acquired.

It has previously been suggested by Auyeung et al. (2005, p.87) that the accounts show that the mines provided periodic depreciation on their 'woks' (the large pans used for boiling the brine to evaporate the water and precipitate the salt).⁴⁶ As these would last on average half a year and could be used 60 times before rusting through, part of their cost would be appropriately written off in each month's accounts (p.90). However as there are no corresponding asset items for these woks in the 'balance sheets' it seems more likely that the charge shown (*guō dǐ* [锅底]) was for renting them. (There is however a value for a used wok shown in a settlement to an exiting shareholder, as they also note (p.91).)

Similarly Auyeung et al. (2005, 87; 91) note the adjustments made for unused supplies of rice, hemp etc.. But again there appear to be no balance sheet items for these 'prepayments' so the supposed 'double-entry' accounting method is unclear. And perhaps surprisingly Auyeung et al. (2005) explain the apparent absence of cash records at the brine wells as reflecting trust among the participants, whereas one would expect keeping track of the handling of cash to be of prime concern (c.f. Yuan et al. 2017).⁴⁷

Awareness of the dangers of fraud is indicated by the inclusion in the 1917 year-end listing of assets of a line at the end of a page stated to be 'deliberately left blank' (*yúhángwèilù* [余行未录]) as it was too narrow for the entry relating to the next customer and the large amount owed. This also suggests the use of the formal accounts as evidence when needed to prove rights in a court dispute.

It seems clear that Zigong's accounting system had a structure for entering transactions from the daily records into appropriate income, expenditure and debtor/creditor accounts and producing its monthly and annual summaries. We can trace individual transaction items, e.g. from the day book to a customer's account, or from a shareholder's individual account to the

⁴⁵ Rongchang is a county in the Chongqing municipal area (which was formerly part of Sichuan province) and there is still an industry there with this name.

⁴⁶ As demonstrated in the live reconstructions of the mines' operations staged at the Zigong Salt Museum.

⁴⁷ However a separate account for cash was not strictly needed for the accounting reconciliations if one balanced all the items of income and outgo. Surviving early Italian examples of DEB do not always include a cash book (de Roover, 1956) or clearly kept it outside the general ledger (Goldthwaite, 2015, p.627).

annual summary. However we have not yet been able to work out exactly how the summary reconciliations articulate overall with the subsidiary records.

Even if evidence of CDEB (i.e. including non-monetary assets) should be found there, the question remains of how ‘indigenous’ were the accounting practices found at Zigong? The earliest monthly summaries available to Auyeung et al. (2005) were from 1915. They argue that outside influences on such a remote Western region would have been very limited and therefore the practices of that time may be taken also to be representative of the period before the 1840s-50s Opium Wars and the forced opening to the West. However our own visit to the region has made clear to us that Zigong was the wealthy, thriving hub of a commercial world involving merchants from various regions of China trading along the Yangzi and its local tributary, the Fuxi river (*fǔxī hépàn* [釜溪河畔]), who have left not only their famous ‘guidhalls’ in Zigong itself (such as the one that is now the salt museum⁴⁸ and the associated tea house, formerly known as the Wangye Temple (*wángyémào* [王爷庙])), but also the clan houses for merchants from other provinces (including Fujian and Guangdong) in nearby towns such as the port town of Xianshi Old Town (*xiānshì gǔzhèn* [仙市古镇]). While we do not know by what mechanisms accounting knowledge was spread (in the absence of any professional organizations or special schools comparable to those in the West) it seems likely that these various merchants (who might well also have had contact with foreigners in the coastal cities) would have continually brought and shared knowledge of innovations in both business and accounting practice, so that by 1915 there may well have been some influence from the DEB practices of the Western-run companies established in the Yangzi basin in the second half of the 19th century (c.f. Peng and Brown, 2016).⁴⁹

Accounts from earlier in the Qing period (albeit still after 1850) have recently been discovered and are now being digitized for future research, which should shed further light on how far and why the system may have changed during the 19th century itself. Preliminary examination of some photographs obtained by Prof. Cao Shuji of Shanghai Jiaotong University does not reveal any significant differences from the accounts already available.

7. Fēngshèngtài and Anhui merchants.

7.1 Fēngshèngtài

⁴⁸ <https://www.travelchinaguide.com/attraction/sichuan/chengdu/salt-museum.htm> (accessed 10.3.2023).

⁴⁹ However, Wright (1998) argues that *formal* dissemination of scientific knowledge (e.g. from the dockyards) through translations of Western texts remained very limited until after 1895.

Fēngshèngtài was a Shanxi salt trader operating in Henan province. Lowenstein and Cao (2023), conclude their recent meticulous study of the original sales and purchases records surviving from 1854-1881 by arguing (p.31):

The documents we reviewed in this article place Fengshengtai's bookkeeping at least in Stage 2 (i)⁵⁰, which calls for dualled entries of credit transactions. Indeed, Fengshengtai exceeds this threshold since not only credit transactions but all transactions—including both sales and purchases—were doubled. Furthermore, while no Fengshengtai balance sheets have been recovered, we do know that Fengshengtai had numerous shareholders consisting of individuals and tanghao (堂号), often translated as “lineage trust.” This was typical of Chinese firms, and of Shanxi merchant firms in particular. As such, it is a virtual certainty that the company would have prepared some kind of summary balance sheet. This would place Fengshengtai—not incontrovertibly, but in all likelihood—at the level of Stage 2 (ii) or Stage 3 (i).

They further argue that the focus on including in the trading accounts all transactions—both on credit and for cash—reinforces the argument that, although they have not survived, there would be at least annual summaries of profits and losses and of assets, and that the overall system seems likely to have reflected the CDEB approach set out in the Shanxi manual we have illustrated at Section 5.1 above, i.e. would have been at our level 3(ii).⁵¹

7.2 Anhui merchants.

The travelling merchants of Anhui province (known as the *huīshāng* [徽商]) were active during the Ming and Qing dynasties (e.g. Berliner, 2003; Zhou, 2011). There have been two recent extended analyses of the growth of their commercial (and related political) success, reinforced by the strength of their kinship lineage organizations (McDermott, 2020 and Gipouloux, 2022). Beginning from exhausting and dangerous annual trading expeditions from Huizhou they finally achieved three levels of success: the lowest remaining as itinerant peddlars, the middling and the most successful becoming ‘house firms’ trading timber, tea and salt and ultimately owning pawnshops, with their influence extending throughout ‘the Yangzi delta, along the middle and lower stretches of the Yangzi river, and on the Grand Canal’ (McDermott, 2020, p.228). Unfortunately, while there are some wills documenting instances of their wealth, albeit generally giving only round-sum (1,000; 10,000; multiples of

⁵⁰ (*Present authors' note*) They are referring to a working draft of the framework we have set out here.

⁵¹ The authors label this level 3(iii) in accordance with the classification previously suggested in a 2019 working paper.

10,000, etc.) figures (Gipouloux, 2022, p. 203), there ‘are very few reliable figures on the finances of private businesses’ and, ‘bereft of instructive figures about matters as basic as budgets, investments, revenues and profits’, historians have been unable to ‘study account books and business contracts to discover changes in Huizhou merchants’ methods of managing their assets and adjusting their kinship organizations’ (McDermott, 2020, p.311).

However, we are able to examine here Anhui merchants’ accounting records from three distinct periods: the first from the 16th Century during the Míng dynasty, and then from two periods of the Qing dynasty, firstly from the 18th century during the reign of Qianlong⁵² and then from the 19th century during the reigns of the last Qing emperors from Daoguang⁵³ to Guangxu.⁵⁴ We treat these below in reverse chronological order as we trace how far later practices, which we illustrate in fuller detail, reflect earlier origins. Throughout they incorporate ‘real’ assets (including merchandise inventories and furniture) in addition to debts in their annual ‘balance sheets’, and so are at least at level 3(i). We cannot prove they reached level 3(ii), as sufficient transaction records do not survive, but this is clearly possible. If so, they provide a complementary archival perspective to the accounts of Fēngshèngtài (which provide evidence of comprehensive doubling of entries in transaction accounts but which do not provide final balances of real assets and liabilities). (See the careful discussion and evaluation of the evidence in the conclusions to Lowenstein and Cao (2023).

7.2a. 19th century Huizhou

Accounting records have survived for successive businesses for Family Chen (程):⁵⁵

- a) Tóghé hào (同和号) from Daoguang 27 = 1847 to Xianfeng 7 = 1857,⁵⁶ with capital 6000 *yín liǎng* ([银两] = silver taels); and from Xianfeng 8 = 1858, with capital 7000 *liǎng*.
- b) successor Zhàochéng hào (兆成号), beginning before Tongzhì 5 (1866),⁵⁷ with capital 2000 *liǎng* (in Tongzhì 5) and lasting till Guangxu 28 (1902).

A formal contract establishing the second stage of a) survives (see Appendix I) but few other items of correspondence directly relating to the accounts. The contract is relevant to our understanding of the general knowledge of accounting procedures as it requires recording of

⁵² Qianlong reigned officially from 11 October 1735 to 8 February 1796 (and actually until 1799).

⁵³ Daoguang reigned from 1821-1850.

⁵⁴ Guangxu reigned officially from 1875 to 1908.

⁵⁵ They are published in Liu Boshan (2005) [*in Chinese*].

⁵⁶ Xianfeng reigned from 1850-1861.

⁵⁷ Tongzhi reigned officially from 1861-1875.

all the business activity ‘clearly in the accounts’ (*xū zhù zhàng míngbái* [须注帐明白]) but, despite its importance in a partnership context, no further details of how the accounting is to be done are identified.⁵⁸ Compared to a modern Western contract there is not much other detail of the business plans but a lot of optimism!

The firms still use an ‘inventory’ method of inspecting annual successive net assets for annual calculation of distributable shares. The method of bonus calculation is apparent on the face of the annual ‘balance sheet’ account. No day-books and only a few records of transactions etc. on unrelated pages survive. These suggest that the bookkeeping may still have been at stage 3(i) as described above, i.e. necessarily supported by functional stage 2 doubled entries for credit dealings with customers, although it is still possible that if day-books could be found they would reveal it was at stage 3(ii).

The periodic ‘inventory’ statements / ‘balance sheets’ list (in columns from right to left: see Table I and Figure 2:

- Assets (including: total commodities [presumably based on physical inventory]; accounts receivable; silver and copper cash [copper converted to silver]; furniture; and total
- Liabilities (including accounts payable to other businesses and individual shareholders’ accounts); and total
- Net assets total (i.e. total assets minus total liabilities)
- Bonus rate % on shareholders’ capital, set to approximately distribute net assets in excess of the shareholders’ subscribed capital.⁵⁹
- Division to individual shareholders
- Net assets remaining after bonus (approximately equal to the shareholders’ subscribed capital)

So (as will also be seen in respect of the earlier periods), the ‘balance sheets’ include ‘real’ as well as monetary assets and the shareholders’ capitals are fixed amounts. There is no systematic depreciation of furniture etc. but it appears to be heavily discounted to ‘net

⁵⁸ A Western contract might specify ‘DEB’ or utilise an earlier equivalent label (e.g. Oldcastle’s 1588 ‘hovv to keepe bookes of accompts after the order of debtor and creditor’. <https://www.icaew.com/library/library-collection/historical-accounting-literature/highlights-of-the-collection/a-brief-instruction> (accessed 11.3.23). Lane (1977) observes the use of standardized accounting language in Renaissance Italy and de Roover (1956) argues that partnership provided the primary motive there for using DEB.

⁵⁹ From a modern perspective there is an implied calculation here of the ‘return on investment’ (‘ROI’) [or ‘return on capital employed’ (‘ROCE’)] which, despite Bryer’s extensive ahistorical claims, was not explicitly deployed as a measure of ‘capitalist’ profitability in the West until the later 19th century (e.g. Toms and Fleischman, 2015, fn.26).

realisable value’, presumably to prevent overdistribution in excess of ‘realised’ (or readily realisable) profits. One large debtor’s account does not appear in the year-end ‘balance sheet’ but is marked as having been written off.⁶⁰ Some investments in shares in other businesses and loans to employed clerks are similarly discounted.⁶¹ This implies there were subsidiary books that have not survived, as does the item which is a combination of small business accounts, so the system had perhaps reached stage 3(ii).

Insert Figure 2 and Table 1 about here *

7.2b 18th century Qianlong period in Wuhu [芜湖]⁶²

The accounts survive from the 7th to the 37th year of Qianlong’s reign (i.e. 1742-1772—around 100 years before the Western incursions in the mid-19th century).⁶³ Most accounts are periodic inventories of assets and liabilities and the structure of these ‘balance sheets’ is similar to the later Qing period (see 7.2a above) and they have a more standardized structure than those from the Ming period (see 7.2c below) with shareholder lists and the shareholders clearly distinguished from lenders.

It is a large family business in the sauce industry (*jiàng* [酱]) with a history of over 100 years. There are six brothers with responsibility divided so that three are responsible for one of the two branches and three for the other. They take it in turns to be in overall charge of the shops.

In the early years half the profit was retained by crediting it to a deceased grandfather’s account but later all is distributed. Of the profit 20% is given as a bonus to the clerks (and sometimes another 5% to the store manager when profits are very high).

Fortunately there survive a lot of contracts and regulations about the management of the business (for the shareholders). There are also rules for the accounting clerks including:

- a) Instructions for the accounting clerks about how to take inventory on the 8th day of the first month (*zhēngyuè* [正月]) of each lunar year, allowing for its state (e.g. not to overvalue damaged/obsolete goods).

⁶⁰ One year another name appears in both the assets (*cún*) and the liabilities (*gāi*). It is not clear whether this was a way of correcting an error by a *contra* entry or whether there were in fact two different businesses involved.

⁶¹ So the kinds of adjustments which are *beyond* the scope of the supposed DEB ‘axioms’ that Sangster (2018) claims underpin Pacioli’s exposition of DEB were being made here, as they were by Italian merchants using DEB before Pacioli’s treatise (de Roover, 1956; Kuter et al., 2010, 2018; Macve, 2022).

⁶² About 240 km / 150 miles from Huizhou.

⁶³ The books are stored in the Library of Sichuan Normal University.

- b) Everything is to be recorded immediately.
- c) There is a ritual for declaring the accounting clerks' honesty, including providing name and birthdate, and ceremonially killing a chicken. Separate records are kept for any loans and advances to them⁶⁴ which must be recorded in the currency actually borrowed, presumably to prevent manipulation of the exchange rates.
- d) No business is to be done on an individual's own account.
- e) Penalties for breaking regulations include funding a 'Beijing' opera (*jīngjù* [京剧]).
- f) There is a small fund for furniture and equipment: each year about 40 liang of silver is transferred in and then the interest (@ 20%)⁶⁵ is drawn on for replacements and repairs as needed. That expenditure is not to be recorded in the regular account books.⁶⁶

So the basic structure of the accounts is similar to those in the later Qing period and as is also to be found during the earlier Ming period to be described in section 7.2c (albeit it is more complicated as business and its organization has become more complex).

7.2c. 16th century Ming period in Huizhou⁶⁷

These are some of the oldest surviving commercial accounts to have been found.⁶⁸ The structure of their early 'balance sheets' which span about 20 years from 1590 is fundamentally similar to the later periods as they include assets beyond cash and debtors.

⁶⁴ i.e. in anticipation of their annual bonus.

⁶⁵ 20%pa is also used as the standard rate on capital for rewarding shareholders/partners

⁶⁶ This profit smoothing device would help fairer allocation across changes in shareholders etc..

⁶⁷ Published in Zhou Shaoquan and Wang Juexin, 1991 [*in Chinese*].

⁶⁸ The oldest example in the China Accounting Museum in Songjiang, Shanghai, is a pawnbroker's loan account book from the reign of the Ming emperor Xuande dated Xuande 3 (1428) but no related account books survive to show what the overall system was. An older set of pawnshop records from Dunhuang, published in Tang Chang-Yu (1981-1991) (*in Chinese*), dates from the Tang dynasty (7th to 10th centuries AD) but contains only transaction day-books together with very detailed information about the individual customers. A series of records for a family clan in 祁門縣 (*qímén xiàn*) county of Anhui province with two branches, including rents received, market sales of grain, and expenses of their extensive landholdings from 1575 (Wanli 3) to 1661 (Shunzhi 18), includes an inventory of the lands (and their rentals) and forests owned together with the tax payable (updated for changes) and regulations for the keeping and checking of the daily accounting records and for preparation of annual summaries of these, which would be open to all the family on the annual 'ancestor worship' day (now 'tomb sweeping day' (*qīngmíngjié* [清明节])) and then one copy stored in safekeeping. The forest manager's accounts include numbers of trees planted and felled and receipts from sales of timber. This series has been published (*in Chinese*) in 奚山公家议校注 by 黄山书社 in Hefei in 1993: ISBN 7-80535-258-5/K·75.

The first summary accounting took place in 1593 (Wanli 21st year). However, the main shareholder, Chéng Dōngxiū, had invested money in the business preparing for the opening 26 months, 24 months, 23 months and 21 months before the date of the first summary accounting. (Another, Wú Yuánjié, had also invested in the 26th month.) In the first pages, the account book recorded the sums of these investments and their dates. So the earliest record of the account book was in 1590/1591, two years earlier than 1593. (See Figure 3 and Table 2.)

***** Insert Figure 3 and Table 2 about here*****

There is variation in format and content between different years, e.g. in 1594 the layout changes. Some layouts account for the total *shízài běn yín* [实在本银] (‘total silver book’, i.e. accounting for where all the shareholders’ and moneylenders’ invested monies have gone on both expenditures and inventories). The partnership members’ accounts show original capital, retained profits, and drawings. Their capitals change and there is often a lack of clear distinction between ‘shareholders’ and other ‘lenders’ who provide finance. Originally there were two partners but by 1593 there are four.

It appears that the calculations of profit and the corresponding bonuses were done before the financial position statements were drawn up.⁶⁹ The underlying structure is that which persists in the Anhui merchants’ accounts, albeit with some modifications to reflect the increasing complexity of business organization, throughout the next 300 years.

These various Anhui merchants’ accounts are the earliest original commercial accounts we have found that demonstrate the inbuilt logic of what in the West was already DEB, and are certainly at stage 3(i) and possibly at stage 3(ii) (but the supporting transaction accounts have not survived). They go back to the period after the Ming emperors had closed the ports and so the possibility of Western DEB influence seems remote, although it remains possible. Early books and pamphlets from 1626 onwards have also been found giving general business advice (similar to that to be found in Pacioli’s 1494 treatise) but without any specific details of how the accounting should be done.⁷⁰

⁶⁹ The annual accounts were then called *chá suàn* ([查算] = ‘checking and calculating’), i.e. not yet the later widely used *hóng zhàng* ([红账] = ‘red (or bonus) account’) (e.g. Guo et al. 2011).

⁷⁰ For example: ‘To be successful in business, you had better calculate and plan clearly in advance and control the expenditure according to the income.’; ‘To choose the manager, try to select one who is both honest and talented. It will be a benefit to the company even though you have to pay him more. You should check the accounting books by yourself very carefully and frequently.’; ‘Recording every expenditure and income

8. Summary: our revised picture of China's indigenous bookkeeping and accounting

Up to the 1820s no guidance on the details of how to do accounting has been found in China (see Section 5.1) and previous research in surviving commercial archives from before 1850, such as Yuan et al. (2017), has found no evidence of development beyond daily records of cash and credit transactions converted into a common accounting *numéraire* (in that case copper *wén* [文]), together with the maintenance of customer 'ledger' accounts for those buying on credit / borrowing money. Although for TTS's trade debtors the monetary balance due was not generally shown, it could be quickly calculated on an abacus as the quantities of goods sold and their prices were recorded (e.g. Picture 3 in Yuan et al., 2017).⁷¹ For TTS's banking customers careful accounts demonstrating full 'four column accounting' (*sì zhù jiésuàn fǎ* [四柱 结算法]) were maintained (Picture 4 in Yuan et al., 2017).

TTS's records also allowed the preparation of annual statements of profit/loss (apparently on a cash basis), although Yuan et al. (2017) were not able to determine their relationship to the surviving routine accounts. In the classification of bookkeeping stages that we have adopted in this paper TTS was therefore at level 2(i).

Previous research in the early 20th century Zigong archives (Auyeung et al., 2005) has argued that they had reached stage 3(ii) and that, as their practices would have originated much earlier, they provide an example of indigenous CDEB. But while at Zigong there are statements reconciling *jìn – jiǎo* and *cún – gāi*, only monetary assets and liabilities appear to be included in *cún – gāi* and our review here of the evidence to date does not show convincingly that they had advanced beyond stage 2(ii). (However, further investigation of the more recently discovered late Qing accounts from Zigong may prove fruitful.)

immediately so that you will not forget or make any errors.'; 'Spend your money very carefully and be diligent on doing the bookkeeping. When a transaction happened, record it immediately.'; 'Choose a partner like making a marriage and when dealing with any transaction you should keep it in your account books clearly.' (See e.g. Cheng Chunyu (2019), *Important rules and tricks of a sound businessman* (Ming Dynasty, 1626) and Wu Zhongfu (2019), *An Overview of Merchants rules and tricks* (Qing Dynasty, 1792) [both in Chinese].

⁷¹ As noted, Yuan et al. (2017) argued that the abacus should be seen as an *integral part* of the Chinese bookkeeping 'system' as it was easy to calculate amounts owed at any time and continuous balancing *within* the written records (as in Western DEB) was not necessary. *Sūzhōu mǎzì* numerals—which were used in all the accounts referred to in this paper—accelerated the speed of such calculations. (See Yuan et al. (2017) Appendices 2 and 3; Lowenstein and Cao (2023), 17-18.)

While the Shanxi banks (*piàohào* [票号]) might also be argued to have reached stage 3(ii) in the early 19th century, nevertheless as their business essentially comprised only loans and other monetary assets this is also effectively only stage 2(ii) (see also Wu, 2016).

Of greater interest are the accounts of *Fēngshèngtài* from the mid-nineteenth century which arguably (given circumstantial evidence) may have reached stage 3(ii). Similarly our investigation here has shown that the Anhui merchants' annual accounts had clearly reached stage 3(i) and could have reached stage 3(ii) by the 16th century although, in the absence of transaction records, we have not yet been able to demonstrate conclusively that these or any other surviving records are examples of stage 3(ii) having been reached in practice before Western influences after 1850 might have steered Chinese accountants towards the *form* of integration that began to become familiar from experience of examples of Western DEB. Lowenstein and Cao 2022 have shown that at *Fēngshèngtài* there was comprehensive 'doubling' of entries in transaction records so they definitely reached a version of our stage 2 (and may well have reached stage 3(ii)).

Reaching stage 3(i) (which we can demonstrate from the Anhui merchants' records), while enabling systematic tracking of material wealth and profit (e.g. Yamey, 1949), would not of itself match up to the claims that have previously been made by several authors (albeit *without* adducing archival evidence) for a CDEB (our stage 3(ii)). These claim that, even though China could not have indigenously developed the *form* of Western DEB (our stage 4), nevertheless in China bookkeeping processes had indigenously evolved by the 17th-18th centuries to require *comprehensively* doubled entries and enable the preparation of corresponding statements of *jìn - jiǎo* ([进 – 缴] = 'income – expenditure') and *cún - gāi* ([存 – 该] = 'assets – liabilities') respectively from summarizing and collating the accounts in a *zǒngqīng* ([总清] = 'general clearing ledger') (see e.g. Aiken and Lu, 1998). Nevertheless, although so far we do not have sufficient evidence, the balance of probability, given that stage 3(i) had clearly been reached, now seems to suggest that clear examples of stage 3(ii) from before 1850 may yet be found.

If the manuals we have examined in Section 5 could be taken as reflecting practices already in use by the early 19th century (and in the case of the Shanxi manual reviewed in Section 5.1 that probability seems high) then we might conclude that for the Anhui merchants, where the *cún - gāi* do include values for real (i.e. physical) assets, while it is possible they may only be based on period-end inventories together with tracking customer

and other debts (i.e. stage 3(i)), the balance of probabilities would be that they integrated income/outgo computation with the change in all recorded net assets (i.e. had reached stage 3(ii)). But unfortunately the supporting books recording transactions have not survived (or yet been found). Similarly the complementary evidence from Fēngshèngtài (coupled with that from the Shanxi manual) would support the view that they too are an example of having reached stage 3(ii) (see the conclusions to Lowenstein and Cao, 2022).

The accounts from Anhui are the only examples we have examined that (in addition to TTS) clearly date from before the opening to the West in the mid-nineteenth century—and indeed go back some 250 years before then.

While some authors have argued that the bookkeeping systems labelled *lóngmén zhàng* ([龙门账] or *tiān dì hé* ([天地合] go back even further, no original archival evidence has been offered for this belief. Prof. Debin Ma has argued that it appears to be a myth that originated during the 1930s disputes among professional accountants over whether reform was all that was needed to ‘modernize’ traditional Chinese accounting practice or whether it should be replaced wholesale by Western DEB (c.f. Hoskin and Macve, 2012; Zhang, 2018; Xu et al., 2019).⁷²

It is clear that the Chinese writing system (with characters common across various South East Asian languages) is fundamentally different from the Western ‘alpha-numeric’ writing patterns that ‘fit’ the DEB layout (and other medieval Western textual developments (e.g. Hoskin & Macve, 1986)). The Chinese abacus, brush, numbers, words and habit of writing were not easily adapted to the Western form of DEB.

But while the *formal* features of DEB processing were absent, with regard to the role of Chinese accounting in economic history we observe that:

- While it has been claimed that the characteristics of Chinese family business (relatively small scale, closely tied relationships) would not require DEB, this was also true of the majority of businesses in the West (e.g. Dobie and McCollum-Oldroyd, 2020).
- There is no reason to believe that the lack of DEB in China would inhibit the development of more complex businesses—major Western companies such as the Dutch East India Company (Robertson & Funnell, 2012), and the Fugger and Rothschild banks, did not use DEB (e.g. Yamey, 1978; 1982); and even during the

⁷² The examples in Appendix II here that refer to these systems all date from the 20th century.

Industrial Revolution companies were successful without DEB (King, 2010; Lemarchand, 1994; c.f. Soll, 2014).

- Chinese industrialization was more probably inhibited by *other* economic, institutional and political factors in the 18th-19thC ‘Great Divergence’ (Goldstone, 2002; Brandt et al., 2014; Broadberry et al., 2018; Broadberry, 2021).
- The initial development of DEB in the West primarily reflects the related developments in textual ordering and reordering within the academic world of the new European universities rather than a response to ‘business needs’ (Hoskin & Macve, 1986).
- The 19th century embedding of DEB in the US was part of the ‘managerial revolution’ in administrative coordination of huge M-form businesses (Chandler, 1977; Hoskin & Macve, 1986, 2000).
- There was a lack of Chinese educational/professional institutions to teach accounting, whereas DEB became the distinctive badge of the ‘new’ 19thC Western accounting professions in Europe and the US.
- What became the early-20thC ‘Weber-Sombart’ thesis has created the ‘myth’ of DEB’s crucial *economic* role in Western capitalism (c.f. Yamey, 1949; Yuan et al., 2017) (and hence its use being banned in Chairman Mao’s PRC).
- In response, Chinese reformers on one side of the modernisation debate in 1930s were probably incentivised to claim that it was not necessary to ‘import’ Western DEB as traditional Chinese bookkeeping could easily be improved and already long had the essential features (c.f. Xu et al., 2019; Zhang, 2018).
- And so the *myth* of there being an indigenous ‘Chinese DEB’ was probably created as a ‘*counter-myth*’ to that of DEB’s perceived economic significance in the West.
- The absence in traditional Chinese account books of the page numbers and precise cross references that are a powerful feature of the processing and control of Western DEB (e.g. Sangster, 2016) would appear to have been (at least partially) compensated for by dating of transaction entries and the frequency of thorough checking and reconciliation, as recommended by the Shanxi manual (see Section 5.1) and confirmed by stamping with ‘chops’ (see e.g. Yuan et al., 2017, Picture 4).⁷³ DEB itself was not a guarantee of accurate processing of information (e.g. Yamey, 1974) so

⁷³ See also Ogura (1982) for traditional Japanese practice.

assessing the relative efficiency of the Western and Eastern methods would have to include comparison of clerical labour costs and related materials costs etc.

We therefore suggest that further archival research is still needed before we can conclusively decide whether examples of indigenous Chinese accounting had reached the stage of CDEB (our stage 3(ii)) (as the nineteenth century manuals imply) and were comparable in *content* and *function* (albeit not in *form*) to Western DEB. Given that the first-hand evidence about the Chinese history is only gradually now coming to light (e.g. Ma & Yuan, 2015; Yuan et al., 2017; Frost, 2022), we emphasise the future research importance of further collaborative study of China and its history so as to illuminate and inform the mainstream of comparative international accounting history ('CIAH') (Carnegie & Napier, 2012).⁷⁴ For this purpose, the English translation now in progress of Prof. Guo Daoyang's new twelve-volume *General History of Chinese Accounting* (Guo, 2023 [*in Chinese*]) updating and extending his seminal books *Research on Accounting History* [郭道扬: 会计史研究] (e.g. Guo, 1988)) should prove most valuable.⁷⁵ The China Accounting History Museum now established at SLUAF, Songjiang, Shanghai,⁷⁶ will also provide a key resource in continuing to build up this body of knowledge of actual accounting records and about actual accounting practice.

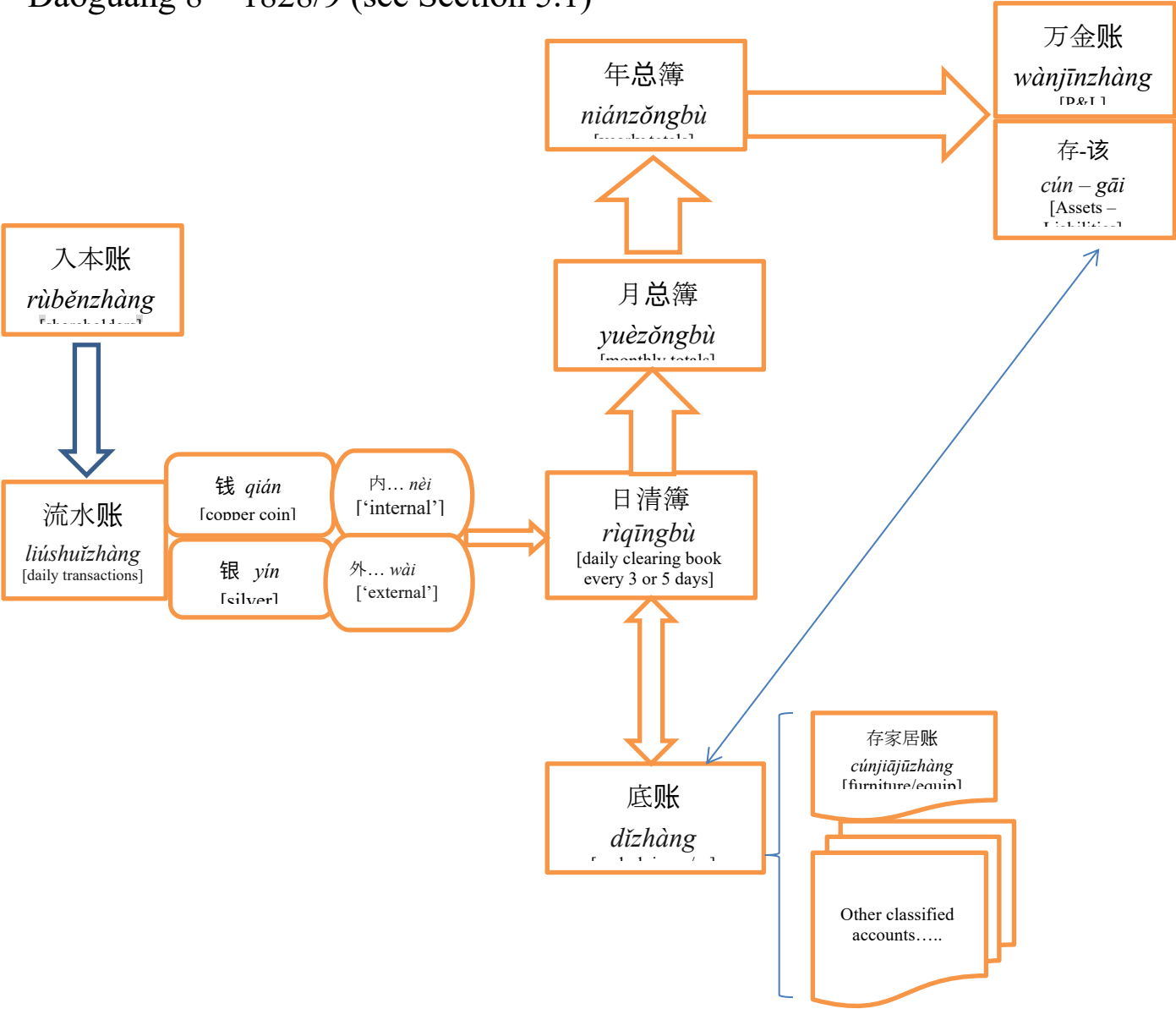
Overall, despite the relative lack of institutional and cultural support, there is no reason to suppose that Chinese practice had 'stagnated' and was inherently 'backward' compared to Western DEB (Camfferman and Detzen, 2017).

⁷⁴ Further comparison with records from Japan and Korea (e.g. Previts et al. , 2011; Zhang, 2018) will also be valuable.

⁷⁵ It was announced at The Silk Road International Conference on Accounting History and Culture: While East Meets West, held in Shanghai, PRC at SLUAF and the China Accounting Museum, 25-26 November 2017, that an English translation of Prof. Guo Daoyang's latest publication was planned for publication by 2024.

⁷⁶ <https://www.meet-in-shanghai.net/travel-city/tourist-attraction/tourist-attraction-detail.php?id=4628> (accessed 10.3.23)

FIGURE 1 Structure of accounts recommended by Shanxi accounting manual dated as Daoguang 8 = 1828/9 (see Section 5.1)



Explanatory notes to the diagram in Figure 1:

At the start of the business a shareholder book *rùběnzhàng* ([入本账] = ‘in original’ [‘capital’] account) and shareholder contracts are needed from which the amounts received are anonymously posted ↓ into the daily book (*liúshuǐzhàng* [流水账]).

Daily book(s): just one is needed in a small business but larger businesses may need to split them into silver and copper transactions, and into ‘internal’ (*nèi* [内]) ‘to record all transactions of silver, copper money and goods’ and ‘external’ (*wài* [外]) to ‘only focus on those related to pawn transactions’. (But there is no mention of the need for an accounting *numéraire*.)

→ every 3 or 5 days a summary (*rìqīngbù* [日清簿] = ‘daily clearing book’)

↑ totalled every month (*yuèzǒngbù* [月总簿] = ‘monthly total book’)

↑ totalled every year (*niánzǒngbù* [年总簿] = ‘yearly total book’)

→ to produce *wànjīnzhàng* ([万金账] = ‘ten thousand gold (pieces) account’) i.e. the summary profit (or loss) account to be sent to shareholders

Also from 流水账 ↘ 底账 (*dǐzhàng* = ‘underlying accounts’) where there is a set of various different classified accounts⁷⁷ e.g. for pawnshop activity, copper-silver exchange, grains, beans and cotton bought and sold, transportation and travel expenses, petty cash, loans (including loans to the clerks), taxes and gifts to the government, trade debtors and creditors etc. The most important of these is 存家居账 (*cúnjiājūzhàng* = establishment furniture/equipment account).⁷⁸

This account together with **the shareholder book** [入本账] and **the profit and loss account** [万金账] should be packed in cloth and kept secret in a cabinet ([柜] *guì*). The daily books are open to customers etc. as they may need to check their accounts but these secret books hide the capital sources and the extent of the assets from general view.

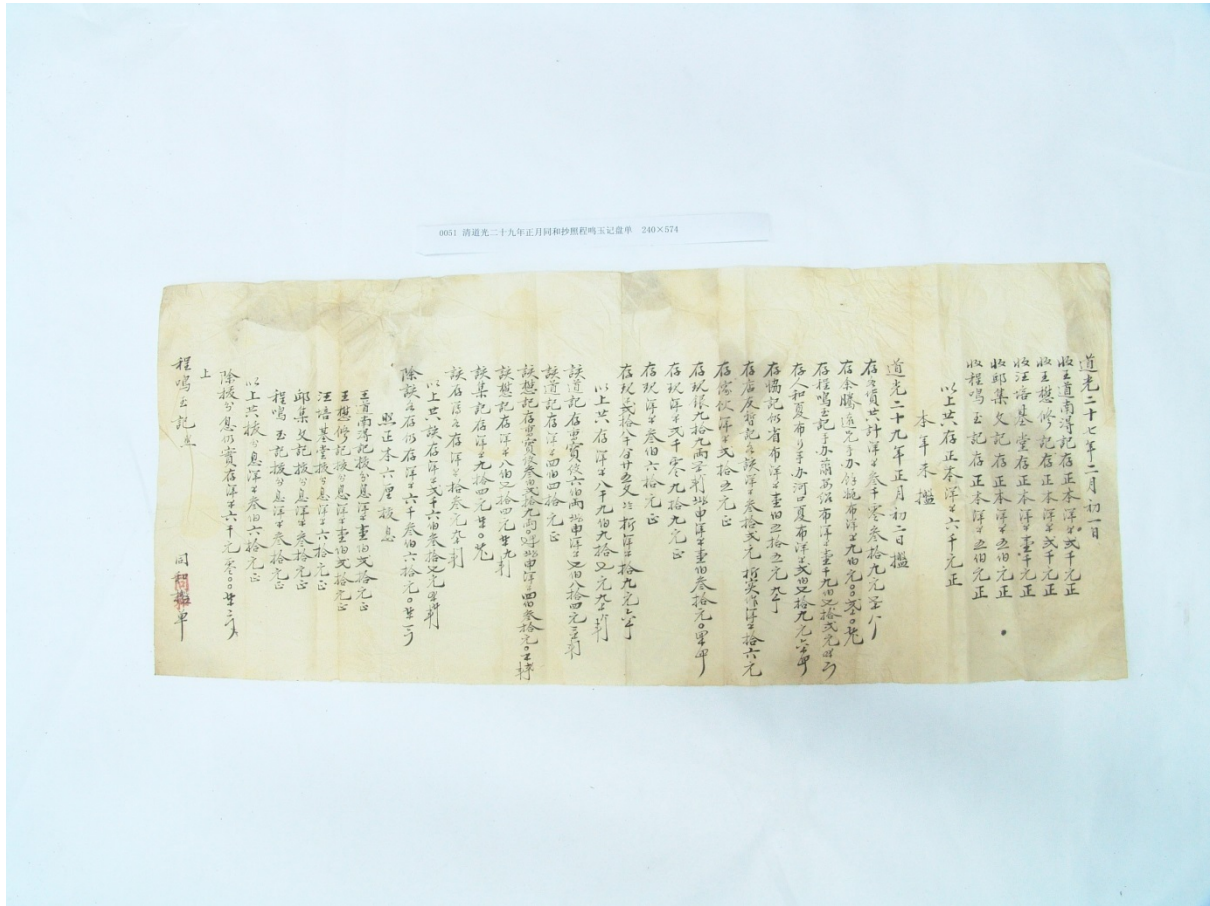
Last in the list of these underlying books/accounts is a record of letters to/from correspondents (*wǎnglái shūzhāzhàng* [往来书札账]).

↑↓ ↗ the ‘triple posting and triple balancing’ (*sān tóu sān hé* [三投三合]) involves checking that these various books all reconcile.

⁷⁷ In a similar manner to TTS although this name was not used there (Yuan et al. 2017).

⁷⁸ The character should be 家具 (*jiājù* = furniture and equipment) but instead this *jū* (‘house’) is used. Such character substitutions are not uncommon in Chinese writing. (A Chinese character that is borrowed to replace a character that should have been used, which has the same or similar pronunciation, is called a *tōngjiǎzì* [通假字].)

FIGURE 2 Huīzhōu: year-end account for 1847 (Daoguang 27)⁷⁹



⁷⁹ 1847 was the first year (see Section 7.2a) but they did not make the conclusion till 1849 (Daoguang 29). See Table 1 and Section 7.2a for analysis of the contents of these year-end accounts and their similarities to those from previous eras.

(
TABLE 1 Huizhou Tónghé hào (同和号) between 1847⁸⁰-1857

Huizhou	annual 'balance sheets' (inventories)										
Firm a)	total assets					total liabilities	net assets		final net		
time	gòngcún					gāi	jìngcún	bonus %	bonus amount		
daoguang	6000	a	2000								
27.2.2		b	2000								
		c	1000								
		d	500								
		e	500								
dg29. 1.2				8997.98	goods	3039.78	2637.45	6360.53	6%	360	6000.5
					furniture	25					
dg30.1.2				12447.57	goods	3429.54	6023.22	6424.29	7%	420	6004.2
					furniture	25					
xianfeng1.1.2				11295.02	goods	852.2	4964.06	6600.56	10%	600	6000.5
					furniture	114					
xianfeng2.1.2	8000	f	2000	17736.3	goods	7636.53	11135.76	6600.54	10%	600	6000.5
xianfeng3.1.2				16906.71	goods	6587.54	8727.81	8178.9	2%	160	8018.9
					furniture	108					
xianfeng4.1.2				15596.57		7799.86	6697.27	8979.314	12%	960	8019.31
						94					
xianfeng6.1.2				15235.73		3075.03	8355.736	6880			
						62					
xianfeng7.1.2				13972.27		5238.09	5970.53	8001.684			
						55					
xianfeng8	new business contract				in 1858						

Note: The currency unit is yáng [洋] (a silver dollar imported from overseas).

⁸⁰ See Figure 2 which shows the original, structured, account (which would have been read from right to left). The structured listings of assets and liabilities are summarised here. 1847 (Daoguang 27) is the first year but the account was not closed until 1849 (Daoguang 29).

TABLE 2 Oldest Anhui account, for 1590/91 - 1593

(Note: the first 7 lines here transcribe/and attempt to translate the contents of Figure 3, but using a vertical layout and modern pīnyīn and simplified characters.)

(Note to editor: in separate Excel file)

APPENDIX I

Huizhou (see Section 7.2a)

Tónghé hào (同和号) shareholder contract from Xianfeng 8 = 1858, with capital 7000 liǎng.

立合墨：

程鸣玉、王道南得记、王心原、王懋修、邱集文等：

窃闻 生财有道、交易在人，觅利先于克己，同心必致如兰，今我等同和一气。

程鸣玉出正本“曹平宝纹”500两正；王道南得记出正本“曹平宝纹”2000两正；王心原出正本“曹平宝纹”2000两正；王懋修出正本“曹平宝纹”2000两正；邱集文出正本“曹平宝纹”500两正；共成正本“曹平宝纹”7000两正。

在本县城 中租寓，合开“同和字号”棉花布店，生理经手司事务，须注帐明白。议定迁年正月眼全盘查所获利金，照本均分，倘有不敷，照本均认，另立盘单付各股收执，自合立后，唯选协合，永同共济，行见源源而来，定然生生不息，为此共立合墨五张，各执一张，永远存照。

咸丰八年（公元1858年）二月XX日 立合墨

程鸣玉 （印）

王道南得记（王心原、王懋修、容照）（印）

王心原 （印）

王懋修 （印）

邱集文 （印）

中见：胡耀堂 （印）

Business Contract⁸¹

Mingyu Cheng, Dao Nan Wang (memo. De [*dé jì*]),⁸² Xinyuan Wang, Maoxiu Wang, Jiwen Qiu,⁸³ the following:

It is said there is a way to wealth. If we work together we can definitely make this deal successful.

Mingyu Cheng invests 500 Liang (unit) of “Cao Ping Bao Wen”, Dao Nan Wang (memo. De [*dé jì*]) invests 2000 Liang, Xinyuan Wang invests 2000 Liang, Maoxiu Wang invests 2000 Liang, and Jiwen Qiu invests 500 Liang. In total the investment is 7000 Liang.

We rent an apartment in the county and set up a cotton cloth shop together. All the management of the business affairs should be recorded clearly in the accounts. We agree to check the profit together in the first month of the lunar year, and share the profit according to the capitals, if there is a loss, we recognise it according to the capitals. We set up a list and give it to all the shareholders. After the contract is set up, we will cooperate forever. Then the money will roll in and our business will prosper. The contract has 5 copies and everyone holds a piece forever.

Xianfeng 8th year (1858 AD) 2nd month, XX day, contract set up.
(Signatures) Witnessed by Yaotang Hu

⁸¹ We are grateful to Danting Ni and Kees Camfferman for help with the transcription and translation.

⁸² *dé jì* probably reflects the business practice of continuing to use an established business name after the ownership had changed, with a note of the current owner's name.

⁸³ People's / business names

APPENDIX II

Tentative classification of bookkeeping systems in known archives⁸⁴ (see Section 3)

2(i): TTS [c.1840]; Fēngshèngtài (1854-1881)⁸⁵

2(ii): Shanxi banks [after 1823]⁸⁶; Zigong salt wells [c.1915 and now from late 19th century];

3(i): *Restaurant* [c.1933]⁸⁷; Anhui merchants [1591] and late 18th century and also 1847→⁸⁸; *Wúxī* 龙门 [1941].⁸⁹

3(ii): ?*Chinese shop in Japan* [1907]⁹⁰; Ruìfúxiáng store [from 1911]⁹¹; Hanyeping Iron & Coal Co [from 1909]⁹²; *Hong Kong trading co* [1915 → (previously 3(i) and later just 2(ii))]; 龙门 [1935].

The Shanxi accounting manual dated 1828 (but probably revised after 1860) and the later manual from Hebei (see Section 5) imply that they are based on a 3(ii) system,⁹³ although both just set out their detailed instructions and do not themselves say they are expounding any named system such as *sìjiǎoshū* ([四脚书] = ‘four feet accounts’) or *lóngmén zhàng* ([龙门账] = ‘dragon gate bookkeeping’).

So more investigation is still needed to locate and date when bookkeeping *practice* definitely reached stage 3(ii), as well as obtain confirmation of the origin of what has been labelled 龙门账 and whether this only means 3(ii) or something even closer in form to Western DEB (stage 4) (c.f. Hoskin and Macve, 2012).

⁸⁴ Records here for which sources have not been cited in this paper are accessible through the China Accounting Museum at Shanghai Lixin University of Accounting and Finance in Songjiang, Shanghai (<https://www.meet-in-shanghai.net/travel-city/tourist-attraction/tourist-attraction-detail.php?id=4628> accessed 10.3.23). We are grateful to Professor Xiaoming Song, its former Director, for exploring them with us. In the case of the 1935 book titled 龙门, this is held at the China Finance and Taxation Museum, Hangzhou.

⁸⁵ Possibly 3(ii) but there are no surviving ‘balance sheets’. See Section 7.1

⁸⁶ When the famous *Rìshēngchāng* bank was founded (e.g. Morck & Yang, 2010).

⁸⁷ Probably 3(ii) given the date, but there are no surviving transaction records.

⁸⁸ Perhaps 3(ii) but there are no surviving transaction records.

⁸⁹ A Japanese investigator in 1941 refers to *lóngmén jiécǎi* ([龙门结彩] = (literally) ‘festooning the dragon gate’) in a business in Wuxi in Jiangsu province but notes that the 总情簿 (*zǒng qíng bù* = summary information book) is not the same as a DEB general ledger as there is no systematic ordering (there are of course no page numbers) and various items of goods/commodities and receivables/payables of agents are recorded in different books. The process described for preparing the final accounts is essentially that of our stage 3(i). Professor Lina Xu (*xǔ zǐfēn* [许紫芬]) has translated this material into Chinese.

⁹⁰ Professor Lina Xu (*xǔ zǐfēn* [许紫芬]) has examined this material.

⁹¹ Gardella, 1992.

⁹² Fang, Zhao (2009). *The Emergence of Early Modern Enterprises in China: A Case Study of Hanyeping Coal and Iron Company, Limited*. Haverford College Thesis <http://hdl.handle.net/10066/13642> (accessed. 21.3.2023)

⁹³ However, as the assets dealt with in the Hebei manual are only the debts created in a pawnshop business it, like the Shanxi *piàohào*, is strictly only at stage 2(ii).

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TABLE 2: Anhui account 1580/1-1583

Based on the photographs of the original book but substituting simplified characters.

PĪNYĪN/ATTEMPTED TRANSLATION Contents of first 12 lines = page 190003 (see Figure 3)

Part 1 is capitals and liabilities; Part 2 is assets.

万历21年7月初一日结算实在东银于后

wànlì 21 nián 7 yuè chū yī rì jiésuàn shízai dōng yín yú hòu

(Wanli 21st yr 7th mnth beginning 1st day squaring up actual owners' money with the following)

Part 1

Chéng Dōngxiū dōng yín (owner's(silver)money 1091.13 26th month 425.516

东修Dōngxiū 东银dōng yín 40 24月 利银 14.4

东修 100.5 23月 lì yín(interest, 34.5

东修 408.64 21月 profit) 128.731

东修 14.16 3.4

共 东银 gòng (total 1654.43 利银 606.546

二共 东利 èr gòng 2260.958
(second total)

支银 zhī yín (pay 205.12

支银 33 加利 jiā lì (add interest/profit)

支银 74.807

24.3

20.08

共 支还银 357.457 zhī huán yín (repay money)

仍 东修 实在银 shízai yín 1903.501 付作21年生利
réng (remain) Dōngxiū (actual money) fù zuò 21 nián shēng lì
(pay 21st year yield)

程观如 共本银 470.56 利银 152.931

Chéng Guānrú gòng běn yín (total capital))

二共东利银 630.49

支还 103.907

仍观如 实东银 shí dōng yín 526.583
réng (remain) Guānrú (actual owner's money)

遵与 东银 81.3 利银 24.29

Zūn Yǔ

二共东利银 105.59

支还 21.48

仍遵与 实在东银 84.11

吴元吉	东银	593 26月	利银	231.27
Wú Yuánjié		170	利银	58.65

共东银	763	共利银	289.92
共东利银	1052.92		

支还	10.57
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仍吴元吉	实在东银	1042.35
------	------	---------

以超兄	东银	7.45	利银	2.43
Yǐ Chāo brother				

存还长白银	90	利银	21.6
cún huán cháng báiyín (deposit to repay long silver)			

存还黑铁兄	100	利	30
cún huán Hēi Tiě xiōng (deposit to repay Hēi Tiě brother)			

存还云斋银	100	利	2.6
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存还叔敬塘	100	利	12.5
cún huán shū jìng táng (advance to repay uncle Jingtang)			

存还震泽银	100	利	13
-------	-----	---	----

存还震泽		利银	20
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存还养心银	60	利银	3.5
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存还钱典 东银	560	利	27
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cún huán qián diǎn (advance to repay money on pawn investment)			
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存还钱典 东银	500	利	24
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存还千户所典东银	350	利	12.6
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cún huán qiānhùsuǒ diǎn dōng yín (deposit to repay a government branch office investment)			
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存还千户所典东银	360	利	4.2
----------	-----	---	-----

存还聚义会银	17.31	利	0.35
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存还小青	80
------	----

通共银	6155.083
-----	----------

tōng gòng yín (combined total money)

Part 2

查实在物银于后

chá shí zài wù yín yú hòu

(check the money for actual things with the following)

3030	存青布	13800疋	black cloth (13800 pì)
67.5	存蓝布	450疋	blue cloth (450 pì)
702.8	存白布		white cloth
280	存脂清布银		money for cloth
36	存米	60石	rice (60 dàn)
7	存碱		soda
3	存灰		ash
4	存柴		wood
20	存做大小二会		for community expenditures
150	存堂山卫土靛		for some brand of indigo
29.6	存土靛		<i>ditto</i>
709	存福靛		<i>ditto</i>
60	存缸上用靛		<i>ditto</i>
53	存现银		cash
24	存众当收		cash in pawnshop
14.5	存透房租		house rent paid in advance
25.78	存糟		lees
522.94	存挂帐		buyers buying on credit
16	存庄上欠		bills due
320	存家火缸水装修等件		furnitures and fittings
共银	gòng yín		total money
6155.084			6075.12 difference -80