

## From Chengdu to Stockholm: A Comparative Study of the Emergence of Paper Money in East and West

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### 1. Origins

It is widely recognised that monetary paper instruments appeared in China earlier than in the West, paper itself having been invented there during the Han era. However, there have been to date few direct scholarly attempts to place the early-modern Western and pre-modern Chinese formative experiences with paper money in detailed comparison by way of attaining a better understanding of the evolution of money as a whole.

Some of the earliest precursors of banking and fiduciary currency in China date back to the heyday of the Tang dynasty (617-907 BC). A case in point is the appearance of *guifang* 櫃坊 or ‘counting houses’ where, for a small service charge, merchants could deposit liquid funds in order to protect them from fire or theft, and draft checks to a third party against the deposits whenever necessary. The proprietors of these early financial institutions are believed to have devised call loan schemes resourced on their clients’ deposits in order to increase house turnover. By the early 10<sup>th</sup> century, however, the *guifang* had allegedly become associated with dubious speculators, who habitually debased coins deposits for quick gains, or turned the establishments they owned into gambling dens.<sup>1</sup>

*Guifang* was concurrent with another notable Tang monetary innovation – ‘flying cash’ (*feiqian* 飛錢) – that was introduced during emperor Xianzong’s (憲宗 r. 806-820 AD) reign.

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<sup>1</sup> Twitchett (1970), pp. 73-74.

Flying cash entailed a public-order mechanism whereby merchants received paper scrip from the imperial treasury against liquid deposits, which could be easily carried onto other provinces and cashed there in tax depots as need be. *Guifang* and flying cash depots dotted the Tang capital of Chang'an and other urban centres. They became the most visible sign of an increasingly sophisticated credit economy. But while private-order counting houses were gradually falling from grace, variants of flying cash continued to be used throughout the subsequent Five Dynasties era (907-960), laying the groundwork for the dissemination of the world's first full-fledged fiduciary paper money during the Northern Song (960-1127 AD).<sup>2</sup>

## 2. The 'Song Industrial Revolution'

The concept of fiduciary money in China drew on the first monetary uses of paper scrip during the later part of the Tang, as well as from the variegated occurrence of base metals in interregional trade after the collapse of the Tang and the ensuing political disunion of the Five Dynasties (CE 907-960). That period saw extensive internecine warfare, which brought copper mining to near standstill in the north. Because copper was becoming rarer, almost all of the contending overlords at the time attempted to withhold bronze coinage from flowing into their rivals' hands as a result of cross-border trade. Their respective kingdoms – Southern Han, Min, Wu Yue, Southern Tang, Chu, Later Tang, Later Shu – cast heavily-debased, or token coinage, from lead, iron or even clay so that it could be used domestically to, for example, pay soldiers' salaries. These coins were, of course, of very little intrinsic value, and *ipso facto* the first step toward ridding Chinese currency of its metallic anchorage.

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<sup>2</sup> Katō Shigeru (1959), vol. I, pp. 395-411; Twitchett (1970), pp. 72-73.

Toward the re-establishment of political unity in China by the Song in the 10<sup>th</sup> – 11<sup>th</sup> centuries, a whole new gamut of credit instruments surfaced in other parts of China too; there was, for example, a private-order arrangement dubbed *she* 賒 whereby buyers would issue wholesale vendors a one-month promissory note (*qi Yue* 契約) made payable after the resale of goods. The circulation of these promissory notes lent the backdrop against which Sichuan iron-denominated notes could take root.<sup>3</sup>

As the Northern Song armies were consolidating their power in Sichuan at the end of the 10<sup>th</sup> century, the Later Shu 後蜀 cumbersome form of iron currency could not be adequately replaced with the new dynastic bronze standard mainly due to the unrealistic official exchange rate proclaimed by the authorities. Consequently, heavy Sichuan iron coins were deposited in bulk in return for promissory notes that had since been issued and regulated by sixteen of the wealthiest families in the region.<sup>4</sup> Critically, note regulation was taken over by officialdom once the Song had firmly asserted its authority in the Southwest. This unceremonious turnaround provided the setting, in which the world's first fiduciary paper-money tender surfaced— but unlike today's banknotes, pre-modern Chinese banknotes were inscribed vertically.<sup>5</sup>

That sequence of events that led to the Song takeover of the private-order notes circulating in Sichuan (then called *Yizhou* 益州) is roundabout but critical to our understanding of monetary history in comparative terms. When Song administrators took over the Later Shu, they discovered that the kingdom's iron coinage had by then driven out better-quality bronze coinage from circulation as Gresham's Law might have predicted. Therefore, they indicated

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<sup>3</sup> See Katō Shigeru (1959), vol. II, pp. 1-11, 56.

<sup>4</sup> Elvin (1973), pp. 150-161; Schifferli (1986), *passim*; Cf. Peng Xinwei (1958), pp. 280-291.

<sup>5</sup> Jia Daquan (1994a,b); Xu Ping'an (2000); Von Glahn (2005), pp. 67-69.

at first that they would introduce a *gradual* commutation of tax liabilities from iron coinage to standard bronze coinage. Yet, these intentions immediately led to a free fall in the relative price of iron coinage, as the local population scrambled to source bronze coinage wherever possible. Three years after they conquered Sichuan, Song administrators therefore decided to avert panic in the marketplace, and to allow for a separate currency zone in Sichuan where Later Shu iron coinage would continue to be admissible for tax purposes, and where provincial mints would continue to cast new Song coinage made of iron. Sichuan merchants in need of bronze coinage to purchase goods in bulk from other provinces were accordingly forced to exchange iron coinage at government-approved depots.<sup>6</sup>

Yet, in 993, despite the Song's willingness to accommodate heavier iron coinage, its plummeting exchange rate against bronze coinage unleashed a local insurgency. These circumstances further disrupted the mobility of iron coinage, so that some merchants started disbursing iron-coinage denominated bills instead. Contrary to expectation perhaps, these bills (*jiaozi*) took root over the next ten years despite frequent forgeries. In 1005, the new Song prefect at Chengdu, Zhang Yong 張詠 (946-1015), aimed to shore up the value of private-order *jiaozi* by limiting their issue to sixteen of the leading local merchant houses. Limiting issue licences was meant to help the bills gain more traction despite frequent over-issues: tighter local-government oversight did appear to have extended the use of notes. By 1020, however, private-order *jiaozi* had been rapidly depreciating again; they were not always honoured by the issuing houses, and consequently those houses were ordered by Zhang's successor, Kou Jian 寇瑊, to shut down much to popular protests. Indeed, China's experience with paper money could have been a very short one if the newly-appointed Chengdu prefect, Xue Tian 薛田, had not decided to re-instate *jiaozi* as a public-order currency in 1023, and to set up provincial exchange bureaus to administer the conversion

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<sup>6</sup> Jia Daquan (1994a,b); Xu Ping'an (2000); Von Glahn (2005), pp. 67-69.

between *jiaozi* and metallic currencies for a modest commission of 3%. Furthermore, Xue aimed to limit each issue of notes to a three-year period and to a maximum value of 1.25 million strings (*guan*), whilst requiring that the bureaus hold at all times 360,000 *guan* in metallic reserves.<sup>7</sup>

Before long, Song administrators realised that this local Sichuan experiment in official paper money issuance could be expanded to the benefit of the imperial treasury. Merchants who were willing to carry provisions to the northern frontier, where the Song was pitted against Khitans and Tanguts, were often paid with various bills that were convertible to iron coinage or *jiaozi* in Sichuan and backed against state revenue from its monopoly of the local tea and salt trade. However, by 1105, *jiaozi* notes in Sichuan were depreciating again to the extent they were declared void unless exchanged for government bronze-coin denominated notes (*qianyin*) at a whopping discount of 4 to 1. Soon afterwards, the costly exigencies of war against the invading Jurchens, who set up the Jin dynasty, led the Song to over-print *qianyin* until these became notes next to worthless too.<sup>8</sup>

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An expansion of the credit economy had been part and parcel of what scholars termed ‘China’s medieval economic revolution’ during the Northern and Southern Song dynasties (960-1127, 1127-1279).<sup>9</sup> Based in Kaifeng before the Jin onslaught of 1126, the Song government demonstrated unparalleled interest in economic reform. Momentous advancements in metallurgy, weaponry, print and maritime navigation defined much of this

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<sup>7</sup> Jia Daquan (1994a,b); Xu Ping’an (2000); Von Glahn (2005), pp. 67-69.

<sup>8</sup> Jia Daquan (1994a,b); Xu Ping’an (2000); Von Glahn (2005), pp. 67-69.  
Cf. *Songshi* [Official History of the Song] vol. 181 chp. 134, “Shihuoxia” 3.

<sup>9</sup> Elvin (1973), pp. 164-199; Cf. Deng Gang (1999), pp. 301-324.

era. The velocity and quantity of both fiduciary and metallic money rose, to the extent that silver bullion was occasionally required as high-denomination means of payment.<sup>10</sup>

Perhaps the most remarkable indicator for the globally-unprecedented level of monetisation that the Northern Song economic order ushered into China is the fact that, overall, up to 70% of imperial revenue at the time was levied in the form of metal or paper instruments, whereas in the pre-imperial era *corvée* labour and commodities such as grain arguably made for the bulk of these revenues. Such a monetised economy could not have emerged just through tax conversion – it went hand in hand with greater coin output, with innovations such as public-order paper money, and arguably most importantly, with new marketplace dynamics. Around 1077, for example, annual imperial revenue was conservatively estimated at 64.5 million strings of cash, of which only 36.2% was levied in the form of traditional land taxes; this is an impressive total compared with the makeup of Ming and Qing imperial revenue, considering that China was much more populous later in the imperial era. Notably, other sources of imperial tax revenue in 1077 came from the salt, wine and tea monopolies (34%), from mining activity (6.2%), and from commercial imposts (13.5%). In other words, commercial sources of tax adding up to more traditional sources as land taxes were becoming very important at the time, even if their overall share was arguably smaller than in early-modern English fiscals. In any event, during the Southern Song era the ratio of grain to monetary receipts within imperial revenue was smaller still because the Southern Song lost much taxable arable land to the Jurchen and later to Mongol invaders.<sup>11</sup>

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10 Quan Hansheng (1972), Vol. 1, pp. 355-416; Wang Wencheng (2000); During much of the preceding Tang era, payment of silver was common in the Lingnan area, but otherwise quite restricted to ceremonial purposes. It was very rarely levied in land tax. See Katō Shigeru (rep. 1970), vol. I, p. 47-82.

<sup>11</sup> Elvin (1972), p. 149; Gao Congming (1999), pp. 16-20; Bol (2010), p. 25.

By way of comparison, upon the Norman occupation of England in the 11<sup>th</sup> century, royal revenue is believed to have relied on land taxes; overall revenue totalled only around 1.7 million pounds annually, of which as much as 64% were directed toward military outlay. The Normans therefore introduced a poll tax and a swag of customs and excises, which heralded a secular diminution in the share of land taxes of overall royal revenue. Whilst Chinese imperial revenue does not seem to have grown much at all after the Northern Song peak, English royal revenue reached 5 million pounds annually by the early 17<sup>th</sup> century. Equally importantly, commercial taxes in England had by then made up around 70% of revenue; by the early 18<sup>th</sup> century, interest rates in England had been considerably lower than in the 11<sup>th</sup> century, and the Crown had begun to accumulate a “national debt” both to foreign lenders and its own subjects through the Bank of England.<sup>12</sup>

Elsewhere in Europe, rulers’ reliance on land taxes during the late-medieval era was arguably more pronounced than in Song China. Frequent warfare and a bigger military outlay, however, meant that European rulers scrambled to find new sources of revenue by the early-modern era: these ranged from debasement through the sale of aristocratic degrees and charters to turnpikes.<sup>13</sup>

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In order to sustain the unprecedented pace of monetisation of production relations, the Northern Song authorities first aimed at enhancing the output of coinage. The famous

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<sup>12</sup> Andreadēs (1966), pp. 54-56, 85-89, 192. Notably, Monarchist Tories had initially opposed the creation of the Bank of England because they believed it would advance the Republican cause.

<sup>13</sup> Webber and Wildavsky (1986), pp. 262-355. Huang (1974, pp. 46-50) estimated Chinese annual imperial revenue in the early 16<sup>th</sup>-century at only 26.7 million strings of cash, 75% of which deriving from land taxes.

reformer Wang Anshi 王安石 (CE 1021-1086), whom later generations of neo-Confucians would castigate as overly ‘statist’, in fact aimed at enlisting the private sector to ensure increased output of coinage would be met with sufficient amounts of raw material. To that end, he considerably relaxed the state’s monopoly on copper mining (*tongjin* 銅禁): he replaced forced labour with recruited miners, gave more autonomy to local pit managers, lifted metal price and transport controls, and reduced taxes on mineral-wealth possession from around 30% to only 20%, thus enticing more prospectors into the industry.<sup>14</sup>

But demand for bronze coinage in the vast agricultural sector and in other parts of East and Southeast Asia put severe pressures on the state-controlled mining industry. Compounding the difficulty in meeting the demand for cash was the relatively high costs of maintaining mint hearths, as opposed to the low seigniorage revenue that the provincial authorities could extract from low-denomination coinage. This set of circumstances resulted in prolonged periods of ‘coin famine’ (*qianhuang* 錢荒), and may partly explain the resurgence of iron coinage during the Tang and Song eras.<sup>15</sup> Indeed, on one end of the spectrum, the difficulty of obtaining cash militated scholars like Zhou Xingji 周行己(1067-1125), who supported supplementary paper-money issues, to deride the significance people attach to cash, as opposed to “grain”. Cash, he averred, “...could not be eaten in times of hunger” (*ji bu ke shi* 飢不可食).<sup>16</sup>

Zhou precociously concluded that paper money could be stably and profitably maintained so long as the government kept two-thirds of its overall value in coin reserve, so that notes would be redeemed on demand. He was similarly leery of allowing too much “heavy”

<sup>14</sup> Qi Xia (1987), Vol. II, pp. 576-587; Wang Shengduo (2003), Vol. I, pp. 71-78.

<sup>15</sup> Elvin (1972), pp. 147-149.

<sup>16</sup> Xiao Qing (1984), 162-171.



fiduciary coinage (*dangshiqian* 當十錢) to circulate in the marketplace lest it may unleash inflation. In that sense, he pre-saged much of the discourse on ideal specie and bullion reserves to support paper money that emerged six centuries later in Europe. The European notion of the right reserve ratio for private-order notes also hovered between 1-2 thirds as late as the 19<sup>th</sup> century.<sup>17</sup>

Once Wang Anshi had acceded to a position of power next to emperor Shenzong he focused on increasing coin output. Wang vigorously pooled together metallurgic know-how and, as indicated above, provided market incentives to the extent that imperial mines and foundries eventually managed to double their output, extracting 9,000 tons of copper and churning out as many as 5 million bronze coin strings annually, i.e. 5 billion individual coins. To understand the sheer scale of Northern Song output, it might be useful to recall that in the late 13<sup>th</sup>-century, the central London Mint is thought to have annually produced only around 50 million silver pennies, England's main currency at the time. Yet, even output such as Wang Anshi called for did not prove adequate in satiating the demand for bronze coinage, as much of the newly-produced coins found their way to Korea, Japan, and Southeast Asia where they were prized as superior media of exchange.<sup>18</sup>

Precisely why 'coin famines' had come about, and how to tackle them were questions right at the fulcrum of statecraft debates in the 11<sup>th</sup> century; it was these intense debates which galvanised much of the seminal neo-Confucian backlash against Wang Anshi, and account in

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<sup>17</sup> Zhang Jiaxiang (2000), p. 19.

<sup>18</sup> Hartwell (1967); Qi Xia (1987), vol. II, pp. 557-565; Von Glahn (1996), pp. 48-50. 'Coin famine' or *qianhuang* continued to haunt policymakers in late-Imperial China. For an illuminating description of how mid-Qing administrators perceived of the flight of copper coins – see for example Dunstan (1996). For London Mint output estimates, see Craig (1953), p. 39-40, 52, 84. Whilst impressive for their time, it is worth recalling that according to Nef (1941, p. 581) copper produced as a by-product of silver mining in Mansfeld alone had reached 2,000 tons annually by the mid-16<sup>th</sup> century.

no small measure for the fact that coinage output was ultimately much smaller in *per capita* terms during the late-imperial era. Polymath Shen Kuo 沈括 (CE 1033-1097), a Wang Anshi supporter, perceptively recognised that the dearth of coins was partly engendered by overseas demand, and partly by population growth; he suggested the best way to satiate the growing demand for money without further investment in mining and mints was to issue new higher-value coins from gold and silver that would not carry a premium overseas, and to issue more notes to be backed by imperial revenue from the salt trade (*yanchao* 鹽鈔).<sup>19</sup>

A few opponents of Wang Anshi at the court also recognised overseas demand as an important contributor to the ‘famine’ but nevertheless blamed Wang’s relaxation of the state’s copper monopoly as making the haemorrhage of coins possible. For Sima Guang, Wang’s neo-Confucian arch-rival, there was nonetheless only one folly at heart, namely, the thrust toward greater monetisation of the rural economy, which disrupted in his view time-honored production relations, and made commodities dearer.<sup>20</sup>

Coin famines remained a pernicious problem right until the 14<sup>th</sup> century, as Wang’s supply-side solutions lost favour. In the subsequent Southern Song era, there was greater reliance on large fiduciary coinage (*daqian*), on paper instruments, and on iron coinage (well beyond Sichuan), to a large extent as a result of the Northern Song government’s failure at ensuring that enough full-bodied bronze coinage would remain in circulation locally so that the monetisation of the tax base could be balanced off. Yet, the proliferation of paper instruments was not limited to state-backed scrip: private-order scrip and commodity bills of exchange continued to be widespread too. Later, the dearth of “cash” led both the Southern Song officialdom and some merchants to try disbursing shorter strings of cash (*duanmo* 短陌),

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<sup>19</sup> Xiao Qing (1984), pp. 154-162.

<sup>20</sup> Xiao Qing (1984), pp. 148-154.

containing around 80 coins, at the same nominal value of a *guan* sub-string (*mo* 陌) ordinarily containing 100 coins.<sup>21</sup>

Historically, the Song formalisation of “short” strings is an important juncture because the conceptualisation of 1,000 full-bodied bronze coins on par with a “string” was not only an ideal that later dynasties pursued; this parity may have evolved from the ancient custom of stringing cowrie in early-imperial times. That 1:1,000 parity was mentioned as early as the Western Han era in Sima Qian’s famous *Records of the Grand Historian*. Smaller strings could be found in the marketplace during the Tang era, perhaps as a consequence of similar cash dearth, but they were not openly formalised by the state in the same way.<sup>22</sup>

More to the point, the definitive defeat of Wang Anshi’s policies upon the ascent to the throne of Emperor Huizong (r. 1100-1126) set in train a secular decline in coin output; it also begot an enduring statecraft legacy in that the economic latitude of the state, e.g. its ability to partake of private enterprise, was constrained, whilst the semblance of all-powerful emperors was preserved. But it was not just economic policy that turned around: the fact that Wang Anshi’s fairly short-lived pro-commerce measures had not of themselves translated into a stronger imperial army that might have conceivably fended off the invasions of steppe peoples from the north tended to unfairly becloud his legacy in the eyes of future generation of imperial policy-makers.<sup>23</sup>

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<sup>21</sup> Elvin (1973), p. 147; Xiao Qing (1984), pp. 148-154; Wang Shengduo (2003), vol. 1, pp. 137-171, 300-303, 354-386. On *duanmo* see also Hartwell (1967), pp. 280-289; Von Glahn (1996), pp. 21-23; Von Glahn (2005), pp. 65-69.

<sup>22</sup> *Shiji* 30, “Pingzhunshu” 8.

<sup>23</sup> Qi Xia (1987), vol. II, pp. 576-587. The unseemly neo-Confucian vein of casting emperors as the “omnipotent rubber-stamps” of their righteous officials might in fact derive from pre-imperial thought, as Pines (2009, pp. 82-113) suggests. Cf. Bol (2010), Introduction.

Throughout the Northern Song era, bronze coinage was the standard except for Sichuan where it was initially the mainstay of the money stock, whereby 10 iron coins were nominally made convertible to 1 standard bronze coin. In other parts of China, Song iron coinage – to the extent it was current there – served merely as “token” or subsidiary money. However, the value of iron coinage depreciated precipitously, so that much of it flowed back to Sichuan, where the authorities effectively discouraged the use of bronze coinage.<sup>24</sup>

Sichuan iron coinage predated the establishment of the Song, but it was the Song dynasty’s attempt to regulate the private issue of iron coin-denominated notes in Sichuan that heralded the evolution of paper money into an acceptable, large scale and state-backed medium of payment. Before 1073, the perception of full convertibility of state-backed notes to coin was quite sound, but over time the Song geared its bureaucracy toward issuing notes against tax payment in coin rather than handing over coins to individuals in return for its own notes (*naqian qingjiao* 納錢請交). Since pre-modern paper as a raw material eroded quickly, the Northern Song could also find a pretext to limit the validity of each of its issues to only a few years (*jie* 界), quite apart from the geographical constraints it imposed on where some of the issue could circulate. On expiry, the notes then had to be exchanged at a considerable discount for a new issue, a stratagem later used by the Yuan and Ming treasuries too. Notably, as of 1073, because of the mounting fiscal pressures of maintaining peace with the steppe peoples to its north, the Song government started issuing unbacked *jiaozi*, i.e. notes that were disbursed without any commensurate amount of coinage received by the treasury. However, even prior to 1073, the use paper of instruments was not always tied to coinage receipts: since the Song government constantly needed merchants to convey supplies to

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<sup>24</sup> Gao Congming (1999), pp. 43-44.

garrisons in the northwest, that region ran a trade deficit with the rest of China. Hence, in return for their services, merchants who made the journey west from the economic heartland of China in the east were often paid not in coin but in exemption bills that could reduce their tax liability in their home province, or in certificates that allowed them to partake of the heavily government-regulated salt trade.<sup>25</sup>

Shen Kuo's suggestion for silver coinage notes to be issued as a means of meeting the demands of monetisation across the Northern Song society, and of defraying the costs of a growing state apparatus, is critical precisely because it was not acted on; instead, where medieval rulers might have resorted to silver or gold coin debasement elsewhere in Eurasia, Song governments resorted to paper money in the main.

Clearly, then, one of the most intriguing facets of Song paper money is its regional private-order provenance, as was the case in Europe too. Private-order paper instruments would generally indicate the growth of a credit economy quite apart from the monetization of tax base. Yet it was only with state take-over that the same paper money could become current beyond the locality where it had been issued. Progressively, state-issued notes had been losing their metallic anchorage: the main form of paper money in the Southern Song for example (*huizi* 會子) was more fiduciary in nature than *jiaozi* or *qianyin* if only due to the fact that the coinage with which it was denominated had been produced much less than in the Northern Song era. Bronze coin-denominated *qianyin* had been circulating at a discount during the Northern Song era, yet they were still fairly sought after by merchants – perhaps it was this experience that led Southern Song officialdom to conclude that *huizi* would not need to be fully-convertible on demand. In that sense, the transition from the Northern to Southern

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<sup>25</sup> Gao Congming (1999), pp. 50-66.

Song might betoken the first few steps toward announcing fiat currency in practise, although at the conceptual level, the link between paper money and metal was never fully severed in pre-modern China.<sup>26</sup>

By the same token, that the Song increasingly resorted to unbacked notes, and to iron coinage -- not just in Sichuan but throughout the Huainan region -- as its armies retreated south might have cemented a trope in later Chinese statecraft subtly linking fiat-money leanings with an *fin-de-siècle* or dynastic decline (衰叔 *shuaishu*).<sup>27</sup> Following Zhou Xingji, however, references to specific reserve requirements became rare in statecraft discourse, even though reserve principles remained well understood. Yuan Xie 袁燮 (1144-1224) of the Southern Song era was perhaps one of the most representative voices of that discursive vein when he postulated: “paper notes are a matter that will be of lowly esteem when aplenty, and become prized when scarce; thus redeeming some of them out of circulation, will make them appreciate in value; for when it is lowly its circulation languishes; when it is prized, it will be widely used; thus redeeming some of it will boost its circulation.”<sup>28</sup>

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The Northern Song move away from solid reserve holdings seem to have come around 1127, as the Song armies retreated south in the face of Tangut (Xixia) and later Jurchen (Jin)

<sup>26</sup> Von Glahn (2005), p. 75.

<sup>27</sup> See e.g. Ye Ziqi's 葉子奇(CE1327-1390) observation in his *Caomuzi* 草木子 vol. 3b *Zazhi* 雜制: “當其盛時皆用鈔以權錢。及當衰叔，財貨不足，止廣造楮幣以為費” [When the Song and Yuan were in their golden age, they both used paper money to support bronze coinage. But once in decline, and as material goods and metallic money became scarcer, they increasingly resorted to paper money for imperial outlay]. Notably, Ye was *not* against paper money in principle; he supported the early-Ming issue, but suggested sound metallic reserves must be kept.

<sup>28</sup> The original passage is cited by Xiao Qing (1984, pp. 248-257) as: “楮之為物也，多則賤，少則貴，收之則貴矣；賤則壅，貴則通，收之則通矣”

invasions. Now based in Hangzhou, the Southern Song bureaucracy was bifurcated by spiralling military expenditure. Hawkish officials were calling to recover China's territorial integrity, while doves sought to maintain the status-quo with the nomadic peoples of the northern steppe lands and avoid a fiscal nemesis. In 1135, the Court had tried to introduce inconvertible notes in frontier areas only in order to strike a balance between the two camps. However, the new notes were rejected by merchants and provincial administrators to the effect that by 1160 convertibility to specie had to be restored.<sup>29</sup>

Steppe peoples who posed constant threat to the Song were, at the same time, imitating Song institutions and material culture, and incorporating more and more ethnic-Chinese sedentary communities within their midst. But the pattern of imitation was not identical at least insofar as coinage design was concerned. For example, the Mongols, who eventually annihilated the Song, had occasionally inscribed their bronze coins with 'Phags-pa script. By comparison, the Jurchen Jin Dynasty exclusively used Chinese script on its coinage. In 1157, the Jin also printed "Song-style" paper money denominated in bronze coinage units for the first time. This was followed in 1197 with silver-denominated Jin notes. But little is known about the degree to which the Jin applied metallic reserve principles to their banknotes.<sup>30</sup>

What *is* known about the Jin-Southern Song fray in monetary terms is that it resembled in no small measure the proto-mercantilist setting of the Five Dynasties era: each side tried to use fiduciary notes as a way of preventing copper from flowing in the other direction, but the dearth of bronze coinage made both Jin and Southern Song paper money lose value rapidly. In response, the Jin introduced baser iron coinage and tried to revitalise mining by relaxing its government monopoly on mining and foundries, much like the Northern Song had attempted

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<sup>29</sup> Qi Xia (1987), vol. II, pp. 1188-1194; Von Glahn (1996), pp. 51-56.

<sup>30</sup> Franke (1992); Yao Shuomin (2003).

earlier. Jin paper money finally came undone in 1206, as the Mongols were consolidating their power in the north, and pushing into Jurchen occupied territory. The cost of Jin defences against the Mongols was financed by printing more and more paper money, whilst at the same time forcing commoners to render their tax liability in hard currency. Soon afterwards, Jin paper money became effectively worthless. Yet in some ways it informed the Mongol monetary experience: both Jin and Yuan paper moneys for example bore greater relation to silver than Song paper money, which had been denominated in bronze and iron units.<sup>31</sup>

### 3. The Early European Experience with Paper Money in Comparison

Perhaps the most compelling difference between the Chinese pre-modern experience with paper money issuance and that which typified early-modern Europe was the fact that the latter served as a gateway to the modern “national debt” economy. Chinese emperors, by comparison, issued banknotes but did not quite borrow from the public, or from foreign merchants, before the 19<sup>th</sup> century. To be sure, positions in the bureaucracy, honorific titles or certificates allowing private individuals to partake of the state’s monopolised industries like salt, liquor and mining were occasionally sold so as to supplement imperial revenue. For example, Song-era merchants who were willing to carry provisions to the northern frontier were quite often paid with salt certificates called *yanyin* (鹽引). These certificates allowed the merchants, in turn, to purchase salt in government-run wells, and on-sell it elsewhere. Proceeds from the sale of such certificates became increasingly important once the mid-Ming polity was forced to abandon banknote issuance in the mid-15<sup>th</sup> century. During the early 16<sup>th</sup> century, a large secondary market for *yanyin* rights (*kaizhong* 開中法) emerged around Huizhou: at that time these certificates characterised by a fairly high degree of fungibility. However, by 1617 the *kaizhong* market was undermined by the Ming bureaucracy, which

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<sup>31</sup> Franke (1992); Yao Shuomin (2003).



decided to fairly arbitrarily concentrate salt-trade right in hands of a handful of favoured merchants. As a result, *yanyin* circulation volumes shrank, and the revenue therefrom never quite supplanted the bulk of Ming imperial receipts, which remained grounded in land tax.<sup>32</sup>

Patterns associated with the rise of England's "national economy" are quite telling in this context. Between the late 17<sup>th</sup> century to mid-18<sup>th</sup> century, English national debt grew from meagre 2 million pounds to a whopping 834 million. Whilst late-medieval and early-modern English monarchs frequently borrowed from foreign merchant families like the Lombards, by 19<sup>th</sup> century the English "national debt" was mainly owed impersonally to domestic bondholders. Indirect commercial tax revenue at that time – such as farmed-out custom receipts -- contributed around 70% of all English tax revenue.<sup>33</sup> Indeed, this might explain perhaps why, short of showing much interest in Qing land-tax revenue -- one of the first thing British empire-builders sought to establish when they set foot on Shanghai's shore in 1842 was a "Chinese" Imperial Maritime Customs.

If the eighteenth-century was for Ming China one of reliance on imported silver, it presaged in Britain both materially and culturally a transition into paper money and nation-statehood. The radiation of paper money from Britain to Continental Europe in the eighteenth century was one expression of an emergent credit economy, equity markets and corporate ownership. Sandra Sherman, for example, contended that "...long-term credit implicated [British] culture in a new kind of narrativity, since promises in stock annuities, and negotiable [paper] instruments were verifiable only with time."<sup>34</sup>

Notably, as England itself was switching to paper money use domestically, it relied on Spanish-American dollars in farther-flung parts of its trading empire. From 1497, the Spanish

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<sup>32</sup> Faure (2006), *passim*; Puk Wing-kin (2010).

<sup>33</sup> O'Brien and Hunt (1999), pp. 56-57.

<sup>34</sup> Sherman (1996), p. 5.

colonial government minted a large silver coin which through wide circulation became known as the Spanish silver dollar. Around the end of the 18th century, this coin was in wide circulation in the West Indies, Eastern Canada and the United States. The value of the coin varied in different locales but was highest in Halifax, capital of the Canadian Province of Nova Scotia. Consequently, whenever merchants from the adjacent Province of Prince Edward Island secured Spanish dollars, they sent them to Halifax, to take advantage of the higher exchange rate there. The resulting shortage of money in on the Island itself prompted the governor to gather in all the Spanish dollars he could and have their centres punched out and counter-stamped with a sunburst. The punched centres passed as shillings and the outer rims as five-shilling pieces. The mutilated coins were thereafter no longer acceptable outside of Prince Edward Island, so as a consequence, turned into discrete provincial currency.<sup>35</sup>

The US Congress established relation among the US dollar and other foreign coins that circulated widely in the country in 1793, but only the Spanish silver dollar was considered legal tender and equated to the US dollar, although its silver content differed slightly. This special status for the Spanish dollar in the US was due to its ubiquity. After the decolonisation of Latin-America, Mexican silver dollars appear to have become the chief metallic money used in southern American states topping the US dollar itself; Mexican dollars were also the most popular money in the American West as late as 1849.<sup>36</sup>

The historic transition from metal to paper money in Europe was thus relatively slow. The recovery of mints during the Carolingian era after a protracted post-Roman hiatus paved the way for a significant increase in continental trade. Concomitantly, the emergence of Florentine banking in the 12<sup>th</sup> century dispelled many of the papal interdictions on interest and capital accumulation. Widening trade links then provided the impetus for a distinctly

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35 Faulkner (2004).

36 Irigoien (2009), pp. 226-229.

European phenomenon: the rise of joint-stock enterprise.<sup>37</sup> Joint-stock companies were emerging alongside guilds in Europe from the sixteenth-century. Many had received a Royal Charter, which helped them monopolise the most lucrative commodities in foreign trade. At the same time, the transferability and scope of share ownership consolidated the companies' purchasing power and institutionalised their independence from the sovereign. Politically, this new balance of power was reflected in, for example, the way the British Parliament was displacing the Crown as the key agent of fiscal policy, and in the legalistic articulation of private property rights.

Whilst commonalities between the mid-Ming and Tudor economies across both extremes of Eurasia may be hard to pin down, there is some similarity between the Sichuan setting, in which the world's first paper money had emerged, and that of Sweden, a peripheral European economy where banknotes were first used in the West. Much like iron-abundant late 10<sup>th</sup>-century Sichuan, Sweden was a net exporter of raw metal (copper) in the mid-17<sup>th</sup>-century. Notably, in both instances paper money first emerged as private-order mechanism designed to facilitate the settling of accounts within monetary systems grounded in heavier coinage than the one used in surrounding regions: iron coinage in Sichuan, copper coinage in Sweden. Notable too is the fact that Sweden was a late comer into the nascent western-European "national debt" economic mould; though it furnished much of the iron and copper that sustained Portuguese, Dutch and English trade with Africa at the time, it was not the driving force behind that inter-continental trade. In fact, the Swedish National Debt Office was only set up only in 1789 in order to help fund warfare with Russia.<sup>38</sup>

Furthermore, in both instances, private-order note values started depreciating dramatically a few years after they were issued, and were only stabilised once the state took over their

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<sup>37</sup> Baskin and Miranti (1997), pp. 34-63.

<sup>38</sup> Magnusson (2000), pp. 72-103.

issuance. In 1656 a Dutch merchant by the name of Johan Palmstruch, who became Chair of the fledgling Swedish Board of Trade, may have realised the potential profits he could make by helping Swedish merchants avoid the necessity of carrying cumbersome copper coinage; he repeatedly petitioned the Swedish throne to advance the establishment of banks in the kingdom, and eventually received a royal charter that year to set up a private bank (Stockholms Banco) in return for committing half of the profits to the Crown. In 1661, that bank started granting loans against property collateral, as well as disbursing notes (*kreditivsedlar*) to clients for a commission, and against commensurate non-yielding deposits of copper coinage. In the beginning, these private-order notes proved immensely popular to the extent that they circulated at a premium over metallic money. Palmstruch, however, could not resist the temptation of surfeit issues over and above the bank's receipts in metal. When the public noticed that, a serious run on Stockholms Banco ensued, leading to the latter's collapse in 1668 and to Palmstruch's imprisonment on embezzlement charges. The Swedish government was subsequently forced to intervene in order to allay the anger of Palmstruch's depositors and note bearers; from then on, the Swedish government took over banknote issuance, initially as a public good, and only much later as a form of national debt.<sup>39</sup>

A Swedish parliamentary central bank (*Riksbank*) was set up to replace Stockholms Banco, and deal with the trail of disgruntled debtors it left behind. By 1701, *Riksbank* started to issue certified cheques of its own, which circulated as paper money side by side with specie. So much so that much copper coinage was drawn out of circulation, and Sweden went on an effectively inconvertible paper money standard in 1745. After Sweden's entry into the Seven-

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<sup>39</sup> Heckshcer (1954), p. 9-92; Dewey (2007).

Year war in 1756, it experienced severe budget deficits and inflation to the extent that bulky copper coinage could circulate at a great premium against *Riksbank* notes.<sup>40</sup>

But, as indicated above, the linkage between banknote issuance and the rise in impersonal public debt occurred much later in Sweden than in England. In 1789, the National Debt Office (*Riksgäldskontoret*) issued for the first time large quantities of small-denomination interest-bearing promissory notes, which circulated simultaneously with the *Riksbank* notes for forty years. Then, in 1831, a year after Sweden formally switched back to a silver standard, *Enskilda* (private) banks began to issue notes that circulated side by side with the *Riksbank* notes for another seventy years. Besides these more officially sanctioned notes, the early-modern Swedish money supply also consisted of a mixture of notes issued by a variety of organizations and individuals – only a fraction of these notes were redeemable in silver however. Swedish monetary “exceptionalism” formally ended in 1873, as it joined the British-led gold standard.<sup>41</sup> The country further converged with the rest of Western Europe in 1897, as private bank note issuance rights were abolished. This was a significant milestone not least because, unlike England, private banking in Sweden had revolved right until the 1860s around currency exchange and note issuance rather the provision of industrial or mercantile credit.<sup>42</sup>

As indicated above, the great bulk of coinage in 17<sup>th</sup>-century Sweden was made of copper, whilst Tudor coinage had been based on silver and gold. In order to raise the global price of copper, one of Sweden’s main exports at the time, King Gustavus Adolphus (r. 1611-1632) decided to place the Swedish monetary system on a copper standard, which lasted right until

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<sup>40</sup> Hecksher (1954), pp. 252-253; Bernholz (2003), pp. 41-45. Note that Sweden had already temporarily been on a silver standard of sorts, and partially retired banknotes between 1776-1789 so as to fight inflation. Cf. Eagly (1971), “Introduction”.

<sup>41</sup> Engdahl and Ögren. (2008).

<sup>42</sup> Magnusson (2000), p. 181.

1776. The increase in Swedish copper exports dovetailed with growing demand for copper in Hapsburg Spain, which also aimed to debase its domestic coinage, whilst diverting silver and gold from its colonies in Latin America to be sold as raw material for currency in other parts of the world. On that score, at least, Sichuan in the Five Dynasties era appears somewhat removed from the European setting in question because iron coinage was initially used there by the Later Shu as a mercantilist stratagem of preventing more-precious copper from crossing the border into competing kingdoms against the backdrop of coin “dearth” (*qianhuang*), whilst Spain adopted baser-metal coinage to actually facilitate the outflow of more-precious metal overseas during an era which saw the output of precious metal spike up. Yet when 17<sup>th</sup>-century Sweden is compared directly with 17<sup>th</sup>-century East Asia rather than with the Later Shu, other revealing points of convergence emerge: it is interesting for example that in Sweden, too, copper mines were mostly state-run (there was, however, more private enterprise in the Swedish iron industry). Also of note is that whilst Swedish copper underpinned Spain’s new domestic currency, 17<sup>th</sup>-century Japanese copper furnished Chinese and Indian imperial mints. That Japanese copper could not, on the other hand, substantively compete with Swedish copper in European markets attest to the limited scope of globalisation before the age of steam.<sup>43</sup>

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Largely driven by the Bank of England (est. 1694), the spread of banknotes in Britain during the 18<sup>th</sup>-century followed rather different dynamics than in Sweden. Baldly put, paper note issuance seems to have been associated with the rise of a modern credit economy more inchoately, when compared with England. To begin with, one has to recall that the Bank of

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<sup>43</sup> Hecksher (1954), p. 20-23. Swedish copper output peaked around 1650 at 3,000 tons annually, or around one third of the output level achieved by Wang Anshi in China six centuries earlier.

England had first been set up as a manager of Crown debt, evolving into a singular bank of issue only much later. It aimed at expanding its own note issue at the expense of a multitude of other private-bank issued notes in the 18<sup>th</sup> century, but its monopoly of paper money in England was formalized only in 1844. Elsewhere in Continental Europe and Scotland, private banknotes proliferated well into the late 19<sup>th</sup> century. In Scotland and Hong Kong private banknote issuance survived to this day.<sup>44</sup>

How did private bank notes emerge in England in the latter part of the 17<sup>th</sup> century, not long after Palmstruch introduced this innovation in Sweden ? The advanced Dutch credit economy may have facilitated the introduction of the idea on the British Isles: it was perhaps no accident that Palmstruch himself had grown up in the Netherlands, where mercantile bills of exchange had long been in use, and where the Bank of Amsterdam (Amsterdamsche Wisselbank, est. 1609) was renowned for its intricate conversion system between silver and gold, and for its prowess in invoicing customer deposits in a multitude of foreign coins of varying quality. Those invoices could eventually be bought and sold in the marketplace for hard currency by those preferring the safety of the Bank's assay system and full metallic reserves. A few decades later, the Bank of Amsterdam also became important creditor to the Dutch East India Company (VOC) and the municipality of Amsterdam, yet in its formative stages it abstained from credit provision that might have detracted from its bullion holdings.<sup>45</sup>

In the early 17<sup>th</sup>-century, English long-distance merchants had not yet had a comparable exchange bank to turn to. Rather, wealthy merchants often deposited their excess gold or silver at the London Tower Mint for safekeeping. This habit came to an abrupt end in 1640, when Charles I expropriated Tower Mint private deposits to defray the cost of his campaigns against the English and Scottish parliamentary armies. Disillusioned, more and more of the

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<sup>44</sup> Mackenzie (1953), pp. 24-35; Schuler (1992); Mokyr (2009), pp. 220-254.

<sup>45</sup> Quinn and Roberds (2005); French (2006).

city's merchants began to deposit their excess specie from then on with London's goldsmiths on Lombard Street. The latter would pay 5% interest on such deposits, and would issue written receipts as proof of the amount brought in. Some of the specie deposited would be on-lent by the goldsmiths at a higher interest rate, whilst the receipts themselves started to pass from hand to hand until they evolved into impersonal scrip in effect. That scrip pattern was then emulated by small regional banks outside London in the later part of the 17<sup>th</sup> century, and it was these "country banks" that made for the incipient circulation of paper money ("cheques") on the British Isles before the establishment of the Bank of England.<sup>46</sup>

Then, the popularization of notes in the West gathered much more momentum when improved printing technology had finally managed to keep forgeries at bay. During the early 1800s, Philadelphia inventor Jacob Perkins's steel plates and siderography began to change the world of note printing. By the 1860s, note printing in Britain and the United States had been mechanized and the need to manually date notes all but eliminated. Printers such as the London-based Bradbury, Wilkinson & Co., the American Banknote Company, and the Continental Bank Note Company of New York made use of these new applications to become premium suppliers of notes to the rest of the world— China and Japan included.<sup>47</sup>

More generally, the nascent modern credit economy was advanced in no small measure thanks to an invigorated concept of corporate ownership. The latter evolved following the Renaissance as a means of affirming the concession of property rights by the monarch, the Bank of England included. The monarch tolerated the concept of corporate ownership because the first joint-stock trading companies paid for their Charters, and helped raise tax revenue. Through the share capital they raised, the founders of joint-stock companies

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<sup>46</sup> Heal (1935), "Introduction"; Van der Wee (1977), pp. 350-355; Goudsmit (2004), pp. 143-164.



achieved a degree of investment security and economies of scale that were quite unparalleled elsewhere in the early-modern world. By the early nineteenth century, the British Parliament was *not* only tolerating joint-stock enterprise but also actively engaged in regulating it, and laying down the legal wherewithal for its exponential growth in the twentieth century.<sup>48</sup>

#### **4. Conclusions**

The last millennium saw triumphal bouts, decline and resurgence of paper money in China and the West. The world's first paper money owes its rise to monetary innovation as early as the Tang dynasty. These came of age during the Northern Song, and culminated in the Yuan dynasty's de-facto renunciation of coinage. However, the Chinese pre-modern experiment with paper money was not an enduring one. In the mid-15<sup>th</sup> century, the Ming polity was forced to relinquish paper money, and the Chinese economy became wholly dependent therefrom on imported silver as the main medium of exchange. While bronze coinage conceptually remained the anchor of late-imperial monetary thought because of its importance to the peasantry, standardized silver bullion, largely measured by weight and quality rather than by tale, was in practice the currency used in higher-denomination transactions. Ironically, it was not until the establishment of British banks in Shanghai in the latter half of the 19<sup>th</sup> century that paper money would re-emerged in China on a large scale.

What hypotheses could this overview support ? First it would suggest that extensive monetary use of silver or gold was not a prerequisite for paper money proliferation. To the contrary, in both the Sichuan and Swedish experience, the appearance of paper money was strongly associated with the use of base metals, and private-order mercantile initiative. At the

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48 Taylor (2006); on joint-stock banks - see also Cameron (1967), pp. 27-29.

same time, when viewed comparatively, the European and Chinese experiences suggest that sustaining paper money involved sooner or later prompt central-authority intervention. Far from enshrining note convertibility, whether the pre-modern state would be able to entrench fiduciary or token currency might be inferred *ex post* from its ability to project metallic-reserve inviolability and prudence as to how it pursued debasement. Though crucial at first, private bank note issuance would become peripheral across pre-modern Eurasia. Once the state had taken over bank note issuance, and was able to prop up circulation for some time, it would ultimately seek to borrow against future earnings rather than against its present bullion holdings. In that sense, the reliability of state-backed notes ineffably underlay the state's ability to later disseminate other paper-based debt instruments like salt certificates, corporate charters or bonds.

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