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A Trojan Horse in Daoguang China? Explaining the flows of silver in and out of China

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Written on board of US Steamer San Jacinto – anchored in Shanghai in October 1856 - a report to the New York Times on the “Progress of the Rebellion in China” indicated that the US government “was forced to buy the Carolus dollars at an increasing sacrifice in order to pay its high salaried officers, not for what they are bought, for a Carolus dollars count not more than a Mexican or American with the pursers of the US navy”. In Shanghai the coin was at 50% premium above of the Mexican coin or any other silver coin of equal weight in circulation. No reason was given for such wild appreciation other than “the prejudice of the Chinese” in favour of the old Spanish American coin. According to the source “one hundred Carolus could buy in any established commercial house in China 150 American dollar or other silver dollars (and) a hundred pound draft on the bank of England maybe had for 250 or 270 Carolus, and larger or smaller ones in the same ratio” at the time when 450 or more pesos were required elsewhere in Europe or America for a sterling. The reporter concluded that in no other place the famous coin was worth more than its standard value.²

That China had a problem with silver is well known to the economic and monetary history literature. In the last 20 years or so the silverization of China has been pivotal in the explanation of the Great Divergence and more traditionally has occupied the interest of economic historians of China and Asia since, probably it firstly occurred in the late 18th century³. There is a wealth of studies on trade and monetary history of China, the Pacific Rim and globally which have emphasized the role of silver in the Middle Kingdom since the 16th century⁴. A more traditional historiography has insisted on the de-silverization of China by mid-19th century, which some associate with the Daoguang Depression – provoked by the acute alteration in the exchange rate of copper cash to silver that characterized the period⁵.

¹ Previous versions of this paper were presented to the UNUIGH II congress London 2011 and the AEHC 2012 congress at Hitotshubashi University Tokyo. The ongoing disagreement with Professors Man-houng Lin, Mio Kishimoto, Takeshi Hamashita and Richard Von Glahn about the role of silver and money in China has contributed to greatly improve this paper and to many very enjoyable discussions. Thanks to Twan Wee Sng for correcting my Pidgin English. All errors remain mine.

² The contemporary exchange rate was 4s2d for a peso. ‘... Twelve Carolus will buy him an American 20 dollars gold piece or any quantity of the yellow coin may be had at the same rate’. *The New York Times* 26 December 1856 ‘Letter from China and Japan Interesting intelligence from the Japanese empire’

³ Pomeranz stresses “the dynamic created by (silver) changing the monetary base of perhaps as much as 40 per cent of the world economy in the early modern period (includes China and her system of tributary states in South East Asia) which were also ‘silver-izing’”. Ibid, (2000) *The Great Divergence*, (Princeton) p 161.

⁴ Dennis Flynn and Arturo Giraldez have made this point a seminal contribution to global economic history and to the Great Divergence. Also Von Glahn *Fountains of Fortune* though all this literature does not go beyond 1800.

⁵ F.H. King, (1965) *Money and Monetary Policy in China* (Cambridge), p, 52-53, is the classical source. Yet in a very recent piece WT Rowe repeated the notion of “silver famine” and the balance of trade problem in

This paper offers a revised view of the interpretations of the particular dependence that China established with imported silver. It also expands on the worries of the report, which describes neatly the symptoms of the problem but lacked a historical perspective on the nature of the role of silver in China. Section one surveys the available interpretations for the silverization and de-silverization of China. It discusses the 'supply' and 'demand' side analysis, which are current in the most recent literature. Section two offers evidence for the weakness of the 'supply side' views and argues that the problem was the *quality* not the quantity of the silver available in the world economy increasingly after the 1820s. Based on documented evidence of the fragmentation of the standard of the Spanish American silver peso, section three challenges the established view of China as performing in a bi-metallic system. Since China did not coin silver, this poses a small theoretical problem, under which the problems arising from this puzzling lack of monetary sovereignty that China had will reveal themselves. The institutions at the root of this problem will be marginally discussed as this is a major issue of political economy analysis and falls beyond the scope of this paper. Instead, the paper shows how the Spanish American peso, which was made of silver, became the preferred means of payment in some areas of southern China, increasingly making the way further into the interior. Section four presents evidence for the variation in the exchange rate of the Spanish American silver coin with other coins and, more importantly, with silver sycee, despite its lower intrinsic value, in China after the 1790s and increasingly in the 1800s. This potential for arbitrage was realized at large scale by means of acquiring silver sycee in China for export, while bringing coined silver to China. As observed by contemporaries, but neglected by most scholars, this commerce became a sizable source of gains for traders in coins and in silver more generally. Underlying this commerce was opium. Hence section five revisits the conventional explanation for opium imports as causing the outflow of silver, rather the other way round. It suggests that the flight of silver was in fact *the cause* not the consequence of opium imports. Based on opium import data it appears that "booming opium consumption" in the 1820s was a by-product of the cessation of the silver standard that had become popular beyond South China. This is not a novelty as, it will be shown, High Chinese officials at the time were clearly aware of the primary causes and direction of the silver flows⁶.

Finally the paper concludes with an analytical argument about the effects of the persistent demand for Carolus – a coin which was decreasing in availability because it was no longer minted since the 1810s. A peculiar combination of developments in Spanish America with the particular setup of the Chinese monetary system acted as a 'Trojan Horse' precipitating de-silverization of China after the 1820s. The turmoil in markets, business and relative prices across goods and means of payments that this situation caused ought to have greatly prejudiced the pace of economic growth and integration that China had enjoyed throughout the 18th Century. Unsurprisingly, the economy imploded and there was a massive social unrest, political turmoil and markets disruption in

explain the Daoguang Depression and argues for the impossibility to resort to a paper currency standard coupled with problems to maintain the foreign trade, *Ibid*, (2011) "Money, Economy and Polity in the Daoguang era Paper Currency Debates' *Late Imperial China*, 31,2 pp 69-96

⁶ Hao, yen-ping mentions the use of opium as means of payment. *Ibid* (1986) *The Commercial Revolution in Nineteenth-Century China: The Rise of Sino-Western Mercantile Capitalism* (Berkeley), ch 3. Thanks to Weipeng Yuan for pointing me to the reference.

the mid-19th century. The argument presented here also helps to explain the renewal of silver imports – thanks to another comparable reliable coin available after the mid-1850s.

I

The historiography, European or Asian but reliant on European sources, insists on the balance of trade problem as the origin of money and silver problems of Qing China. Even recent scholarship claims that the outflow of silver at the time was one of the main causes for the divergence of China from her own economic trajectory in the previous century. Conventionally, the inversion in the trade balance is explained by the massive import of opium that British agency traders brought from Bengal to China as a means to continue an otherwise unfavourable exchange which could be –and that for 200 years had been – balanced with silver imports. Unable to place woolen manufactures in the Chinese market at a time when mechanized production of textiles was still gaining pace in England, only the demand for opium allowed the continuation of westerners' commerce with the world largest manufacturer and exporter of consumer goods of the time. Silver outflow provoked a massive inflation in copper cash on the one hand. And on the other hand prices in silver plummeted which aggravated the fiscal incidence of some crucial taxes collected in silver, particularly land taxes, fuelling discontent and widespread rebellions.

This narrative combining imperialist overtones from the West and a sense of decay and exhaustion in the East has been very influential. It still enjoys currency in the broad history of late Qing China and the Sino-Western relations at the onset of modern European imperialism. The opening of China in the 1850s was hence the starting point of a new world order which dates the modern period in global history. The Daoguang era, and more particularly the economic depression at the time, has become the cleavage for the periodization of Qing China and the Ports Treaty, a culmination of an inherently diverging trajectory within Eurasia.

More recently a number of historians of China have cast doubt at least on parts of this narrative. In a ground-breaking study Man-houng Lin added a twist to this interpretation. In *China Upside Down* (2006) Lin revealed that the nature of China's silver problem was not caused by the demand for opium, which was paid in silver only. In the introduction of her book Lin admits that "she was shocked to find that the presumption that opium caused the early 19th century silver crisis was not fully warranted, since in the late 19th century China imported more opium and yet silver flowed back into China"⁷. As increasingly over the century China silk and cotton manufactures were losing ground to industrializing Britain, historians stopped at half of the story and assumed causation from opium inflow to silver outflow, and from silver scarcity to depression and decline. Instead, Lin offers a different view on the origins of the shortage of silver. She argues for a supply side factor: the quantity of silver coming to China after 1808 reduced dramatically.

⁷ In the main argument she follows the leads of Dermigny and Cheong, Lin Man-houng, (2006) *China Upside Down*, (Cambridge) p viii

Having shown that the origin of the silver coming into China –in increasing volumes throughout the 18th century- was South America, she documented the drastic shortfall of imports in the 1820s and explained it as result of the contemporary collapse of silver mining in Spanish America. After the 1820s silver imports fell from nearly hundreds of tons a year to nil. Lin concluded that the cessation of silver imports corresponded to developments in Spanish America which at the time underwent a process of independence from her colonial ruler. Drawing on Spanish American literature Lin adjudicated China’s increasing dearth of silver to the disruptions that wars provoked in the producing regions. Moreover she explained that the import of opium reacted to the growing scarcity of silver and gold by documenting the “temporal correlation” of opium imports and silver outflows.⁸ This posed a clear supply side explanation for the silver problem in the Daoguang period, but correlation does not mean causation. The intriguing question is thus if the causation runs indeed from the Mexican mines to China or the other way round.⁹

On the other hand Richard von Glahn has argued that imbalances in the domestic Chinese market for silver caused a fall in the demand for silver imports. He thus agrees that the balance of trade argument needs to be revised. However, instead of pointing to supply side shortages in the global silver markets, caused by political events in Latin America, he sees the origins of lower silver imports in shifts in the domestic Chinese economy. Consistent with his 2003 article, Von Glahn furthers his argument that the transition to a silver monetary standard was “a precondition for the great influx of silver”¹⁰. Either supply or demand driven, both authors would agree on the problem of silver –absolute or relative- scarcity. Whereas Lin does not elaborate much on the effects on the real economy, Von Glahn attributes the import and the outflow of silver in the Chinese economy to the demand for a silver means of payment driven by the dynamism of the domestic (and export) economy in China.

II

Man-houng Lin was right about the timing. Whereas old demand side explanation attributed to the growing demand of opium the cause for the massive flows of silver out of China, Lin inverted the relation opium silver and assigned the scarcity of silver to the depletion of its traditional source. Yet, exchanges with Britain became negative in the 1810s, and the flight of silver started in the mid-1820s. Thus unable to pay for the increasing consumption of Bengali opium with the traditional exports, China’s reversal of her trade balance was inevitable and, unable to keep the pace of

⁸ ‘But if opium imports had occurred without the downturn in the global markets for China’s tea and silk, the outcome might have resemble that of the late 19th century when China’s gains from selling tea and silk offset its losses from purchasing opium and other imports.’ Lin, *China Upside Down*, p 114

⁹ Lin recognizes the ‘sluggishness’ of China exports growth –mainly of tea and silk – and she assigns to a supply side shock in the period 1808-1856: as the ‘culprit’ of a silver shortfall in lieu of opium –and cotton- imports. Ibid, *China Upside Down*, p 114

¹⁰ R. Von Glahn, (2003) ‘ Money Use in China and Changing Patters of Global trade in Monetary Metals, 1500-1800’, in D Flynn, A Giraldez & R Von Glahn, *Global Connections and Monetary History, 1470-1800*, (Burlington), p 188.

exports China started “falling further behind”. This was confirmed with the data from commerce with Great Britain only, at the time the main trading partner and the source of the imported opium. However, as it will be shown this depiction of China’s foreign trade is just partially right.

When including other significant commercial partners of China at the time a different scenario appears¹¹. From the 1780s onwards North Americans became China’s second largest commercial partner from the west. More importantly, North Americans were China’s main suppliers of silver imports and became almost the sole source after the 1790s. Elsewhere I have described the trade of North Americans with silver and explained the timing for its development.¹² As North Americans obtained the silver from their own trade in Spanish America is worth comparing the relative availability of silver in the world economy of the 1800s. Coined silver had traditionally been the main item of silver shipments by the EIC and VOC, the Manila Galleon and any other country in the 18th century and coins were at least 95% of the total US imports to China¹³. The origin of the silver was mainly Mexico and to a lesser extent other Spanish American countries¹⁴.

Graph 1 shows the trends of Chinese imports of silver ‘from’ North America and of North American imports of silver from Mexico, together with the volume of silver minted in Mexico in the period 1821-1856. According to a vast literature, at the time Mexico achieved independence from Spain, its silver production – the country’s sole export commodity- collapsed. Compared to the volumes of silver mined and minted at its peak in the 1790s, about 24 million pesos or 600 tons of fine silver a year, volumes of silver output and coinage after independence clearly abated. Yet, at the rate that China was importing silver before 1820, and the US was importing from Mexico, the volume of silver available in the traditional commerce was clearly sufficient, indeed several times larger, to fulfil the usual export-import silver trade between China and the US. Thus, to account for the volume of the whole of silver that China had traditionally demanded. These volumes dwarf the annual average silver imports at Guangzhou, which amounted to 3.5 million pesos (87.5 tons) in the 1780s, to 4.1 million (102.5 tons) in the period 1796-1806 and around 8 million pesos (200 tons) at their peak in 1819-1820¹⁵. In short, there was plenty of silver in the traditional producing region and available to her traditional supplier, for China to continue importing as it had done since the 1640s despite disruptions in Mexico mining from the war of independence **(See Graph 1)**.

¹¹ This does not include a considerable regional commerce in South Asia. However current research points at similar problems in a larger regional scale. Ohashi, A. (2011). "World Silver flows and the formation of the forced cultivation system in Java: 1800-1840." *Nagoya University GSID Discussion Papers*, #183.

¹² A. Irigoien, (2009) "The End of a Silver Standard, the consequence of the breakdown of the Spanish Peso Standard in China and the US, 1780s-1850s" *Journal of World History*, 20, 2 pp 207-244

¹³ J.DeBow, (1854) *Encyclopaedia of the Trade and Commerce of the United States*, (New York) p 575. Until 1827 China received more than half of the total US exports of silver. Roughly the balance of the total US silver trade was negative until 1825, and the country had not yet exploited the rich silver ores in the west.

¹⁴ In the 17th Century Peru was much more important as silver producer. In the 18th century Mexico was producing about 2/3 of the total world supply of silver. All of South American mining combined might have produced 75 to 80 % of world output. At its peak silver minting totaled 950 tons of silver a year. Irigoien, "The End of the Silver Era". The assumption that the bulk of this silver was immediately extracted to Europe via Spain is wrong and long outdated by a large body of literature which explains it otherwise. R. Grafe & A. Irigoien, (2006) "The Spanish empire and its legacy. Fiscal redistribution and political conflict in colonial and postcolonial Spanish America", *Journal of Global History*, 1 pp 241-267 for some estimates.

¹⁵ The US share of China’s silver imports was 4% in 1780s, 64% in the late 1790s and about 100% in 1819-20. Irigoien, "The End of Silver Era".

So Lin was right about the timing of the reduction and almost disappearance of silver imports by China. However, although Independence wars and turmoil in Spanish America certainly disrupted the sources of silver, they cannot explain this fall in China's imports. Hence if the problem was not quantity, the cause of the cessation of China's imports of silver may be elsewhere.

This is the main finding of "The end of the silver era" which provides details of Chinese imports inclusive of those intermediated by North Americans, as much as the volume and trends since 1719 when Guangzhou was opened to trade, and makes the case for a demand driven explanation for the end of silver imports by China. Indeed the root at the halt of silver imports, and the later outflow of the metal, lies in the quality of the standard of silver in circulation in the international economy. Indeed the problem was not the quantity of silver but the quality of the silver coin. It was China that did not want silver –as had come to know it- coincidentally at the time of Spanish America independence.

The Chinese had long made distinctions among silver coins as reported by *The "Fan Kwaie at Canton"*¹⁶. With Spanish American independence the standard with which the silver had been coined disappeared very much all of the sudden caused by developments in the Spanish world following the French invasion in 1808¹⁷. Thereafter, variations in the peso standard were observed by contemporaries like the US Mint, the Bank of England and were a constant preoccupation of the English Parliament. This did not escape to other south East Asian rulers and merchants worldwide¹⁸. Traders and transactions immediately registered the alterations – which on the other hand continued throughout the 19th century. Only by the mid-1850s the Mexican government managed to regain control over silver minting by the lease of coinage to foreign private companies and thus established seigniorage to some extent. Thus the Mexican eagle recovered a certifiable standard, stabilized and increasingly became a reputable silver coin. With a comparably stable standard in silver coins – which were minted in the order of millions, and falling international exchange rates for silver to gold - China resumed her imports of silver, as Lin had noticed.

The end of the silver standard was a massive alteration in the international monetary system affecting the preferred means of payment of the early modern period. However this has been

¹⁶ WC Hunter, (1970) *The "Fan Kwaie at Canton, before treaty days, 1825-1844* (Taipei). Also R. Von Glahn (2007) "Foreign Silver Coins and Markets Culture in Nineteenth Century China" *International Journal of Asian Studies*, 4, 1. Hereafter the name for Canton will be replaced by the pidgin Guangzhou unless indicated in the original.

¹⁷ A Napoleonic army invaded Spain and jailed the king and crown prince in 1808, opening a massive constitutional crisis: a vacuum of legitimate authorities gave way to war against the French in Spain and a civil war in America, which resulted in the territorial and monetary fragmentation of the Spanish empire. The multiplication of mint houses in America destroyed the reputation of the silver peso and provoked widespread substitution of currency with notorious economic effects, with it the standard of coinage known since 1732 ceased altogether. See A. Irigoin, (2009) "Gresham, on Horseback: The Monetary roots of Spanish American Political Fragmentation in the Nineteenth Century" *Economic History Review*, 62, 3 pp 551-575 for details.

¹⁸ In 1830 in Cochinchina King Minh-mehn attempted to coin silver in the same weights as the Spanish American but had a very poor standard, about a third made of copper alloy. His successor improved the coinage but lacking sufficient silver the coin was driven out of circulation. The Spanish pesos was current or preferred in payment for taxes in Macao, Siam, Penang – but not Malacca- Manila for obvious reasons, Singapore, Bangkok and the Malay states expanding the commerce with Spanish American silver to the whole of South East Asia. S. Wells Williams, (1863/1966), *The Chinese Commercial Guide*, (Taipei) p 199,214-15, 229, 236-67, 301-17. Ohashi has found similar developments in Batavia

neglected or misunderstood by economic historians who nevertheless pointed at a “world depression” at the time¹⁹. Because of the European focus of the traditional economic history literature the global dimensions of China’s silver problems are often overlooked. Thus, the co-evolution between the reversal of the Chinese-British balance of trade and the outflow of silver could only be explained through the consumption of opium as an exogenous factor²⁰. However there is no proper exploration for the sudden appetite for opium among the Chinese, which knew it and bought it abroad in the late 18th and early 19th Century²¹. Morse’s *Chronicles* claims that by the 1810s they imported opium to the order of 2,000 and 4,000 chests a year. Yet opium imports multiplied by a factor of 20 or 25 during the Daoguang reign²².

In China’s economic history in particular, the dearth of silver and the derived monetary effects constitute one of the main preoccupations of the historiography. It is understood that China performed with a double metallic standard of silver and copper (for most a bi-metallic standard).²³ Whereas there was not a fix rate, nor China had the institutional means to establish one, the rate of exchange between the two metals traditionally oscillated around 1000 copper cash per unit of silver.²⁴ Frank King called this a ‘parallel bimetallism; however the concept fails to describe the workings of China’s monetary system. Although silver enjoyed legal tender it was never a currency issued with the monopolistic authority of the government. In fact private money shops could mint silver with different weights and fineness; hence it could not perform as unit of account.²⁵ Silver ingots could not circulate as money as it could not be counted by the tael, since there was no single standard for the tael which had different weights and fineness.²⁶ Since 1640 when the flow of

¹⁹ F. Crouzet, (1972) ‘Capital Formation in Great Britain during the Industrial Revolution’ ch in *Capital formation in the industrial revolution* (London), A. Gayer, W. Rostow & A. Schwartz, (1975) *The Growth and fluctuations of the British Economy*, (New York) pp 653-54

²⁰ According to S. Naquin & E.S. Rawski, “In those decades, the outflow of silver from China caused by the opium trade led to widespread price deflation and then depression, with catastrophic results”. Ibid, (1987), *Chinese Society in the Eighteenth Century*. (New Haven) p 232

²¹ As shown by MD Merlin (1983), *On the trail of the ancient Opium poppy*. On the trade see the classical work by M. Greenberg (1951) *British trade and the Opening of China 1800-1834* and more recently CA Trocki, (1999) *Opium, Empire and the Global Political economy: a study of Asian Opium trade 1750-1950* (London).

²² Lin, *China Upside Down*, table 2.7 p 86. A more conventional view in Naquin & Rawski, *Chinese Society in the Eighteenth Century*.

²³ See D. Ma, (2012) “Money and Monetary System in China in the 19th and 20th Century: An Overview”, *LSE Economic History Department Working Paper*, #159.

²⁴ The Chinese system as known was very much ‘an ideal model’. The tael was a unit of account when silver payments were involved and the ch’uan when payments were made in cash copper. A tael was equated to one ling, the Chinese ounce of monetized silver. The ch’uan was made of 1,000 units or ch’ien equal to one cash coin. A ch’uang (weng) usually referred to a string of 1,000 cash coins. Additional complexity comes from the combination of units of account, of value and units of weights with the same name. F.H> King, as many others considered the Chinese a commodity money system.

²⁵ ‘Only copper coin, as money, enjoyed its identical name with the unit of account wen, any merchandise or any other kind of money could be measured by the precise number of copper coins. In contrast China’s native silver currencies (yingliang) combined two characters yin (silver fineness) and liang (tael as weight). This dual character impeded the establishment of silver as unit of account if only a precise weight and fineness could be established as a standard’. Gong Yibing ‘The Silver Monetary structure in Fujian during the Qing dynasty’ (Mimeo 2006)

²⁶ The word *liang* designated both a unit of weight (equal to 37.5 grams) and thus often considered as “ounce” and a monetary unit of account for silver. In the latter case I use the English word tael. There were

Japanese silver cased, the exchange rate copper to silver (weng to liang) oscillated around 800 to 1,000 pieces of cash. It averaged 1,200 in the Jianqing period (1792-1820) and by mid 1830s the exchange rate started to fall and depreciation accelerated in the 1840s and 1850s, as the social and political situation deteriorated. The period witnessed copper inflation and silver deflation at the same time and often these extraordinary simultaneous monetary developments are presented as the cause of the so called Daoguang Depression.

III

The intricacies of China's monetary system are fascinating and continue to puzzle scholars today as much as contemporaries in the 19th century. They have inspired a wealth of exciting scholarship in the West and the East which is impossible to fully discuss here. At least in the West, from Mr Morse to Professor Kindleberger – who featured the 'Chinese as hoarders, *vis a vis* the Europeans as spenders', historians tend to view them through the lenses of the balance of payment model.²⁷ This approach has worked well to offer a rationale for the flows of silver in and out of Asia. But if one compares the trend of the copper/silver ratio in China with more comprehensive information on China's imports and exports of silver some problems appear. As seen in graph 2 the copper depreciation in the Daoguang period was remarkable. Provincial mints often debased the copper coin, but during the Daoguang period adulteration became notorious leading to the Xianfeng inflation²⁸. Economic historians too quickly explain the debasement of copper coins as a result of expansionary fiscal policies or as strain in the bimetallic system from silver outflows. Either way, a necessary connection is derived: shortage of silver is explained by opium imports in excess and outflows of silver pushed hence the exchange rate of copper up. Since copper was the means of payment of commoner and small transactions, opium imports indirectly also caused inflation. But the flight of silver as most of the transactions were registered "in silver" ought to cause deflation; hence the alleged monetary causes of the Daoguang depression remain contradictory²⁹.

As Lin has shown the rate of depreciation of copper (weng) abated when silver exports resumed in the mid-1850s. Rising opium imports match the falling silver / copper exchange rate,

four main weighting systems, which gave name to the best known taels of the time: the Treasury standard (kuping), the Water transport standard (cooping), the Pass Standards, (guanping) and the Guangzhou standard (guanping). Alongside there were regional taels systems in different areas of the Qing, for instance (yanglin) in Hankow, (yuping) in Chongqing, (jinping) in Tianjin, (jianping) in Ningbo, (shiping) in Amoy, (biaping) in Kaifeng, (yancaoping) in Yantai, (yingping) in Niuzhuang, 'and so on'. Ibid p 3, Also King, Money and Monetary Policy, pp 70-79.

²⁷ CP. Kindleberger, (1989), *Spenders and Hoarders: The World Distribution of Spanish American Silver 1550-1750* (Singapore). Flynn challenged Kindelberger's wrongful characterization, in Ibid, (1990) *Journal of Economic History*, 50:3 pp 721-24

²⁸ J. Ch'en, (1958) 'The Hsien-feng inflation' *The Bulletin of the School of Oriental and African Studies*, 21 pp 578-596 is still the best account of the expansionary fiscal policy of the Qing under duress from the Taiping rebellion.

²⁹ Ch'en indicates that 'the people, fearing the eventual collapse of the Qing regime, got rid of their copper money – the legal tender, and transferred their savings into silver, mostly in the form of the Spanish Dollar'. His evidence is the rise in the exchange rate of the peso in sterling. Ibid p 580

which overshoot above 1350 weng in 1834 and soared over 2,000 weng in the 1850s. These developments gave credence to the workings of a bimetallic system; however how to explain that the exchange rate turned negative and fell by 35%, from 935 weng in 1805 to 1267 in 1821? At that time silver exports increased from a roughly 2.2 million pesos (55 tons) to 3.6 million (90 tons) a year, and silver had never been as abundant as ever before³⁰. In the absence of opium imports and with a growing introduction of silver, the rate for the period 1780- 1795, and further to 1805, is puzzling. This casts some doubts on the conventional idea that opium is the culprit that explains China's de-silverization.³¹ **(See Graph 2)**

But did China really perform on a pure bimetallic system, which would explain the exchange rate driven by oscillation of the stocks and flows of silver and copper? Akinobu Kuroda has challenged this view emphasizing the coexistence of multiple monies, and the extended use of 'imaginary monies'³². In this regard China's does not differ from other economies of the period, which performed with a variety of currencies. These were not perfect substitutes hence markets and traders resorted to units of non-physical existence as units of account, the so called 'imaginary monies'³³. This feature is indeed an outcome and a fundamental factor of the weak market integration characteristic of large territorial political units in the early modern period.

What is more intriguing is the peculiar character of the Chinese empire's lack of sovereignty in monetary affairs. Hamashita Takeshi has rightly argued that "there were no institutional controls over the exchange rate of silver" and Richard von Glahn clearly established that the demand for silver was very much a private affair, instead of being driven by fiscal policies, like the 'Single Whip'³⁴. Yet, there is still a vigorous scholarship, mainly in economics that misunderstands the role and function of silver and emphasizes the role of imperial monetary policy in dealing, or failing to deal, with the monetary disturbances.³⁵ This approach seems far-fetched if one trusts a contemporary, the Editor of the *Chinese Repository*, who explained in 1863 that

³⁰ For the breakdown see Irigoien, "The End of the Silver Era"

³¹ King rightly spotted the incongruence between the dates for the fall in the exchange rates and the dates for the export of silver. However, citing a contemporary report, he attributed the copper depreciation to the debasement and poorer quality of cash, and ultimately to a failure of policy since the Qing administration failed to organize the mining industry to maintain production levels. *Ibid*, *Money and Monetary Policy*, p 52, 134

³² A Kuroda, (2005) "The Collapse of the Chinese Imperial Monetary System" in K. Sugihara (ed) *Japan, China and the Growth of the International Economy, 1850-1914*. (Oxford) ch 5 pp 103-126

³³ For instance the *ducado* in 16 and 17th Century Spain.

³⁴ R. Von Glahn, (1996) 'Comments on "Arbitrage, China and World trade in the Early Modern Period' *Journal of Economic and Social History of the Orient*, 39:3 pp 365-67; also T. Hamashita, (1984) "Foreign trade finance in China 1810" in L Grove & C Daniels *State and Society in China, Japanese perspectives on Ming-Qing Social and Economic History*, (Tokyo) pp387-481 p 389.

³⁵ See CN Chen, (1975), 'Flexible Bimetallic Exchange rates in China 1650-1850: a historical example of optimal currency areas' *Journal of Money, Credit and Banking*, 7 (1975) C. N. Chen, C. F. Chou and T. W. Tsaur, (1979), 'The Flexible Bimetallic Exchange Rate System Revisited', in C. M. Hou and T. S. Yu (eds.), *Modern Chinese Economic History*, (Taipei) for the classical account, and more recently H. Vogel (1987) 'Chinese Central Monetary Policy, 1644-1800' *Late Imperial China*, 8 for the role of copper. For a rare and more informed exception see WG. Wolters, "The use of monies of account in exchange banks: The Amsterdam Exchange Bank, the Hamburg Bank and the Hong Kong and Shanghai Bank, 17th 19th centuries" Presented to the Panel "Revisiting Money As A Unified Unit of Account from a Complementary Viewpoint"

'The absence of national coinage is so singular an exception to the general usage, even of Asiatic nations that one is led to inquire into the reasons for it. And his surprise is rather increased to find that the cause is to be found in the commercial freedom which had done so much to elevate the people. The government on the one hand is not strong enough everywhere in its wide domain to punish those subjects who counterfeit its coin; and on the other hand, it is not honest enough itself to issue pieces of a uniform standard for a length of years and thereby obtain the confidence of its subjects'.³⁶

In light of this arrangement and the limited fiscal and monetary capacity of the Chinese state there was no scope for monetary policy as understood by economists today³⁷. According to a traditional account, "in reality" there was not one but several monetary systems: China had "structural uniformity with local variations"³⁸. Indeed China had neither a unified economy nor a unified monetary system. Unsurprisingly, the system was considered "ineffective, partly (as) a result of the political system", partly as a result of technological backwardness visible in the "primitiveness in the casting of coins and the currency of substandard coins"³⁹. Without an integrated monetary system and markets, the role of copper inflation in setting the Daoguang Depression should be questioned.

More modern historians focus less on policy, but in turn they overlook the difference between silver bullion, as a commodity, and coins made out of silver. Hence the historiography maintains strong bullionist overtones and the balance of trade / payments model persists in spite of the evidence against it. Indeed, as stressed by Kuroda silver was one of many means of payment which increasingly circulated in 18th century China, in the form of bullion, or coin, and alongside copper, bronze, paper and bank notes and bills. This lack of uniformity is qualified further by Kuroda for whom these instruments were complementary rather than substitute.

Yet China did not cut silver coins. Provincial mints with imperial licenses supplied the copper coinage and the silver "shoes" (taels) were a matter of private coinage. Neither the empire nor the provincial governments did ever mint silver as a matter of a sovereign authority. Apparently there were repeated attempts to imitate the Spanish American coin and Wells refers to various cases in Shunde, south of Guangzhou on the east coast, in Fujian in 1838, in Taiwan and in Changzhou in

WEHC, Utrecht 2009, and T. Shiromaya, (2008) *China during the Great Depression. Market, State and the World Economy, 1929-1937*, (Cambridge) p 17-19

³⁶ Wells Williams, *The Chinese Commercial* p 265

³⁷ Again Lin Man-houng offers a good survey of the concerns and debates – and eventually futility- of scholars of the time in regards of monetary matters, in parts II and III of *China Upside Down*. On the attributes and capacity of the Chinese state in the light of the European counterpart – England, see P. Vries (2012), "Public Finance in China and Britain in the Long Eighteenth Century" *LSE Economic History Working Paper series # 167*

³⁸ Under King's definition of monetary policy as 'coextensive and uniform' the situation in China was 'ambiguous. Moreover, in monetary business the imperial government left the execution of such 'policies' to provincial authorities,' it established certain basic rules under which the monetary systems of the provinces were to operate, but was itself only responsible for their supervision', note the lack of precision. King, *Money and Monetary Policy*, p 43

³⁹ *Ibid* p 45

the 1840s, but none of them lasted long.⁴⁰ This is a crucial aspect of the monetary history of China which often goes unexplored although it caused a fundamental problem: the economy as a whole, markets and agents were vulnerable to the vagaries of other monetary instruments.⁴¹ In the 18th century this was the role of imported silver, and increasingly of the silver coin minted in Spanish America.

Hence silver and silver coins should not be considered one and the same thing, nor were they interchangeable in China, and as will be shown they were no complementary. This distinction is most relevant for the argument posed here. Elsewhere if the value of the coin went down, or was lower than the intrinsic value the owner could take the coin to the authorities to be melted down into bullion. Thus in China ultimately “bad” silver ended up being smelted in private silver sycee⁴². However, if the value of the coin was higher than the intrinsic value, elsewhere owners could take bullion to the mint and get coins for a fee, or seignorage. Without a mint that could coin silver Chinese holders of sycee did not have that option. As a consequence the exchange rate between Spanish American coins and sycee was subject to an asymmetric adjustment. The value of coin could fall below that of sycee, because it would be melted down, but when coins appreciated against sycee the only means of arbitrage was the import of identical foreign coin to China, driving up the demand for Carolus. But this became impossible after the 1820s raising the exchange rate for silver.

It will be argued that lacking this possibility there was an open, and wide, room for this asymmetric arbitrage. Furthermore, “disruptions” in the existing monetary standard in Spanish America were imported into China after the 1820s, meaning that the standard at which coin and silver were equated broke down. Thus, silver and coined silver were no longer complementary but competitors. The resulting effects were like of a ‘Trojan horse’ in the monetary “system” of China as will be shown. By the time of emperor Daoguang this arbitrage was the driver of opium imports, and played an important role in setting off the depression.⁴³

⁴⁰ Wells Williams, *The Chinese Commercial* p 270, Von Glahn, “Foreign Silver Coins and Markets Culture in Nineteenth Century China” indicates that some silver was minted in Guangdong during the Qianlong period and again in the early 1850s.

⁴¹ There are scarce references to China’s silver endowments in the literature. Wells implies there was some production and cites a memorial to the emperor of 1830 which indicates that silver was obtained at Hoshan mines in Yunnan and on the Cochinchina border. Apparently, mines were farmed out and occupied around 40-50,000 workers. The annual estimated output was ‘not far from two millions taels’. Ibid, *The Chinese Commercial* p 275. Man-houng Lin, (2004) “The Shift from East Asia to the World: The role of Maritime Silver in China’s Economy in the Seventeenth to Late Eighteenth Century” in W. Gungwu & N. Chin-keong,, (2004) *Maritime China in Transition 1750-1850*, (Wiesbaden) pp 80-81.

⁴² The export to neighboring markets which lacked silver or performed with worse means of payments, seems to have been an alternative as it was the case in other Southeast Asian economies which supplied China. See fn 11

⁴³ On the other side, the sovereign in control of the mint could a) regulate the value of the coin, b) obtain revenues from seignorage and c) as often happened in early modern Europe, abuse this prerogative and adulterating the bullion content of the coin (debasement) the volume of coinage was increased, expanding the circulating medium, like most of European sovereigns did.

IV

Whereas most of the literature concerned with the import, circulation and export of silver in China has considered silver as a commodity it is clear that increasingly in the 18th century the use of silver by the Chinese indicates there was a demand for coined silver. That was noticeable to anybody willing to have business there as is recorded in nearly every merchant's papers. Of that silver, between 1735 and 1811 Mexico alone minted about 1,300 million coins representing about 34,000 tons of silver. Of those coins, 929 million or 22,860 tons were struck with the face of the Spanish kings on the obverse between 1772 and 1811. The famous Carolus, named after Charles III, the Bourbon king of Spain between 1759 and 1788, and Charles IV, his successor from 1788 to 1808 when the French invasion ousted him from the throne⁴⁴. Other mint houses in the Spanish colonies struck exactly the same coin until 1808 though in smaller numbers⁴⁵. In 1732 the Spanish crown took coinage out of private hands and began to use a mechanical press to strike the coin, making the rim and stamping the name of the mint. The manufacturing of the Spanish American peso thus became greatly standardized. Until 1728 the coin weighed 25.562 grams and had a fineness of 930.5 thousands of pure silver and bore the royal standard in between the two columns representing the Pillars of Hercules, the promontories that flank the entrance to the Gibraltar strait which connects the Mediterranean with the Atlantic Ocean. These columns gave the coin the name "Pillar dollar", and when Charles III dictated a slight debasement of the coin (a reduction from 916.6 to 902.7 thousands of pure silver) keeping the size and weight unaltered, the king's face was stamped on the other side. Hence this coin was better known as Carolus as the name of the King also appeared, alongside the year of coinage, as shown in the picture below. This, as the illustration (figure 1) of a Chinese manual helping to distinguish coins shows, was readily noticed by the public, who called them "old heads", "Buddha heads" or *sikong-yin*, as described by Von Glahn⁴⁶. **(See Figure 1)**

After 1808, Charles IV abdicated in favour of his son under French pressure. But the Crown prince was in French custody so no die was made with which to strike the coin as usual. As old dies were used for some time, it is still possible to find coins dated after 1808 bearing the face of a "wrong" sovereign. More important, the implosion of Spanish rule led to a fragmentation of the fiscal and monetary institutions of the empire. Run by local authorities, different mint houses started cutting their own coins. As political strife over the reestablishment of a legitimate rule in Spanish America evolved local governments found it expedient to alter the quality, size or weight of the coin. Within 10 years Mexico alone had 6 additional mint houses. Regional silver found its way to the minting press and overseas, by passing through, and in competition with, the formerly single

⁴⁴ Ferdinand VII, heir of Charles IV, was imprisoned by Napoleon and restored in 1813. His reign until 1833 date the transition to a constitutional monarchy in the Europe and the loss of the American colonies.

⁴⁵ At the peak of silver minting under the Spanish rule in the 1790s, Mexican output represented 64% of the total Spanish American coinage. Other mints located in Lima, Potosi, Guatemala, Santiago Chile, Popayan and Bogota (today Colombia) coined another 36% of the total 38 million pesos – 950 tons of silver - that was the average annual coinage. Traditionally, at these volumes of silver minting, Spanish American silver coinage largely exceeded the annual imports of silver done by China.

⁴⁶ von Glahn cites the 'Newly Reprinted Classic of Revealing the Secrets of Silver' (Guangzhou, 1826) and *Yang Qing's Treatise on Silver* again of 1826 "Foreign Silver Coins". The original date for these publications is very telling and coincidental with the fall in the Chinese imports of silver. Ibid, "Foreign Silver Coins and the Market Culture".

colonial mint in Mexico City. Two other establishments opened in Peru, disputing Lima's monopoly on seignorage, and every mining region which could obtain ore from miners and refine the silver would venture a coinage. At the direst moment of this dissolution of Spanish institutions, stealing the dies and the minting press was the recourse to carry on and coin silver elsewhere. Initially all minting more or less followed the specifications of the existing coinage of the Carolus. But tinkering with money was handy when military needs were on the rise so workshops for silver minting multiplied; hence debasement was rampant. Latin America had discovered the inflationary means to meet fiscal deficits.⁴⁷

Even before the restoration of Ferdinand VII in 1814 as successor of Charles IV, coins started to be struck with his face. Aspiring to substitute the French government efforts to produce the dies with which to uniformly mint the coin faltered as the monarchy was going through a major shake-up. In 1812 a constitution for the whole of the Spanish empire limited Ferdinand's royal prerogatives and said nothing about the "power to coin", unlike the US constitution. The increasing variety of coins only aggravated the debasement and the silver standard which distinguished the most successful silver coin of the early modern period collapsed. This was also immediately known to the Chinese⁴⁸. Figure 2 shows material available to Chinese merchants and money lenders to establish the quality and origin of the coin. Both coins were clearly distinguishable. **(See Figure 2)**

The Spanish American pesos were no novelty to China.⁴⁹ They had increasingly arrived in cargos from all over the world as silver was the preferred item of commerce with China and were most abundant during the mid-Qianlong period. They started to be known as *yuanyin* to differentiate them from silver sycee; and over time the Chinese character *yuan* from the name started to be used as a monetary unit of account⁵⁰. Morse' *Chronicles* contain plenty of references to the continuous appreciation of the Spanish American silver coin vis a vis other European silver coins or sycee. However he did not differentiate the terms currency from silver, giving the impression that China's dearth of silver was the result of a commercial problem. He observed that in 1796 coins were becoming "scarce" at Guangzhou – or in other words, that demand for coins in particular was growing. He noted that "head dollars (Carolus) are of the touch 92 and are now readily exchanged to an equal weight if sycee of pure silver of touch 100 by which is evident that head dollars bear a premium of 8.69 per cent"⁵¹. But the Carolus was not only preferred to sycee but also to any other European coins. In 1798 other European silver coins would suffer a 14 to 18 per cent discount in relation to the Carolus when trading in Guangzhou and the same year Morse recorded that "head dollars" were at premium over sycee. From then on, Spanish American coins started *to be counted* (*yuan*) instead of weighted. In the meantime the old pillar pesos started to

⁴⁷ For details and the monetary and political developments see Irigoien, "Gresham on Horseback"

⁴⁸ Who named this coin "small robe" as different from the "large robe", e.g coins with the face of Charles III and IV. Chinese also called the latter *sangong* (three gong) and *singong* (four gong) alluding to the roman numerals struck next to the Latin name of the king "Carolus".

⁴⁹ They were called *yang-t sien* yangqian or foreign money, but also *fan-ping* fanbing (foreign cake or wafers) and *hwa-pien* huabian (flowered bordered) in allusion to the laboured rim.

⁵⁰ A *yuán* literally round object or round coin has been used as the name of the monetary unit of account ever since. Early (provincial) minting of *yuan* in the late 1880s equated the coin to the Mexican peso. It is also colloquially known as *kuài*, which in a rough translation means 'a lump of silver'

⁵¹ HB. Morse, (1926) *Chronicles of the East India Company Trading to China, 1635-1834* (Oxford) II p 279

disappear from circulation most likely exported to South East Asia. It was clear then that any demand for silver in Guangzhou was indeed a demand for Spanish American pesos rather than silver; and Chinese demand was fully aware of the differences among species and of the quality of the Spanish American peso.

The explanation for such success, according to Morse, "was simple"; (because) "an individual objects to carrying around in his pocket four pounds of silver which he cannot subdivide, and he equally objects to carrying six pounds weights of copper as the only fractional money".⁵² Silver taels could not be divided but more importantly were not uniform; they varied in size from 50 taels to three mace and had to be stamped by seals of the assayer to evidence their pure silver content. Monetary historians count 67 recognized standards and the government only acknowledged three different types: Haikwan for Custom purposes, Kuping for the Treasury payments and Shanghai increasingly a unit for the uses of business. But convenience was not the only virtue of the Spanish American coins. The first North American dollar coins taken to Guangzhou, which had very similar weight, diameter and finesses ended up being melted down. "Reliability", in the words of King gave these coins an additional worth. To this one needs to add "familiarity" as the experience with reliability became the norm and "acceptability" by the Chinese Customs and tax authorities "were all legitimate reasons for the preference".⁵³

Thus, with the availability of a certifiable silver standard that the Spanish American peso provided, the preference of the Chinese for the peso should not be surprising⁵⁴. Indeed, for all the bad reputation which Spanish institutions suffer in the current political economic literature the wide acceptance of the coin as silver standard is remarkable. It went beyond silver starved China. The United States designed the silver dollar as its first money (after the blunder of the Continental) in 1791 on the template of the Spanish peso standard as well. The *real*, *peso de a ocho*, the 'piece of eight', the 'Spanish dollar', pillar or Carolus, as the coin was called was current in every sizable trading post, city or market place from the Mediterranean and the Caribbean to the Indian Ocean and the China's Sea. In South East Asia it was accepted for taxes and became the most preferred means of payment in the land. As Morse pointed out the reason was simple, and powerful: lower transaction costs at a time when the Chinese economy was growing fast together with her population. In 1877 the North China Daily News on the 4th May reported the Carolus at premium

⁵² HB. Morse, (1908) *Trade and Administration of China*, (London)

⁵³ King, *Money and Monetary Policy*, p 85-86. 'since the dollar (*peso*) perhaps had to be sent into the interior to make payments, familiarity was not to be limited to the relatively sophisticated populace of the treaty ports, but extended to those at the margin on whose acceptance the actual market price of the coin eventually depended'

⁵⁴ According to the Editor of the *Chinese Repository*, who wrote in 1863 'The fastidiousness of the Chinese respecting certain is like of the Turks and Arabs, and them all it probably arose from the habit of received coins of a certain stamp, from a uniform experience they were always good; this habit disinclined them to receive any other sorts from ignorance of their purity'. Wells Williams, *The Chinese Commercial*, p 268

82sh to the Mexican dollar at 76.25sh⁵⁵. Still in 1901 the Carolus was valued 20-23% over its intrinsic value in the countryside near Wuhu.⁵⁶

But silver coins were not subsidiary money, or fractionary value of the tael, as there was not a set standard for the latter. Indeed, as King indicates, the coin “was preferred to sycee for silver payments in general, and thus a rival of the traditional tael system”⁵⁷. Inside China the Spanish American coins circulated at the standard of 7 mace 2 candareen, roughly a 70-73 per cent of the imaginary unit of 100 per cent fine silver tael. This ratio was originally established in Guangzhou as the coin weighed 0.72 of the Guangdong liang at the same degree of fineness⁵⁸. It created what Mio Kishimoto calls in an earlier article “the Seventy-per-Cent Cash Custom (Ch’i-che Ch’ien’ or qizhe qian)”: a standard of value equivalent to the value of the Spanish American silver coin. Or as testified by George Braine, of Dent & Co before the Parliament Select Committee in 1847 “The dollar is always employed as the means of fixing the value in all transactions whether for cash or barter”⁵⁹

In her insightful 1991 article Mio Kishimoto shows the extent of the usage and circulation of the Spanish American coin, either as physical or imaginary unit. She recalls that the standard appeared in numerous prefectures in wage and land contracts, in house rentals, payment of corvee duties, gratuities and in trade contracts and accounts of capital. Her sources show the appearance of the seventy percent custom by the mid 18th century in Nanjing, Fuzhou and areas of the Yangtzi delta and North Fujian. It spread fastly from Central to South China including Jiangsu, Zhejiang, Fujian, Anhui and Hunan as “the use of a fixed exchange developed into the mature form of ‘seventy per cent cash’”⁶⁰. One of her early sources, praised “that there was no need for weight and scissors (to handle silver) any more”, as in the Kangxi period.⁶¹

As the silver imports intensified after 1780s, silver coins and more precisely Spanish American coins made their way deeper into the Chinese economy. Coins appeared in a variety of transactions

⁵⁵ W. Bailey & B. Zhao, (2009) “Familiarity, Convenience, and Commodity Money: Spanish and Mexican Silver Dollars in Qing and Republican China” <http://dx.doi.org/10.2139/ssrn.1424070>, accessed 14/12/2012, figure 2.

⁵⁶ *IMC Decennial Report, 1892-1901*, I, p 387 cited in King, *Money and Monetary Policy ...* fn 37 p 261

⁵⁷ *Ibid*, p 82

⁵⁸ King indicates this was in fact a convention after the agreement between the EICo and the Hong merchants about the rate at which the Hong would take payment in pesos. *Ibid* p 82. The rate varied slightly depending the type of transaction, for instance payments into the EICo Treasury were at 718 taels per 1000 pesos, payment in cash, generally weighed at 717 taels, in settlement of account among foreigners at 720, received by tradesmen if paid by compradors from 715 to 717 per 1,000 coins. Wells Williams, *The Chinese Commercial*, p 268.

⁵⁹ British Parliamentary Papers, “The Select Committee on Commercial relation with China” (1847) (654), p 359 (BPP hereafter)

⁶⁰ Kishimoto notes that the custom survived the end of Qing dynasty as a custom in land sales in Anhui and Zhejiang well into 1930. (p 10). ‘Contracts were expressed in silver, but it was an informal silver’, and apparently the custom survived in use for eating houses until 1916. M. Kishimoto, (1991) “The Seventy-Percent Cash (Ch’i-che Ch’ien)’ Custom of the Mid-ching Period” *The Memoris of the Toyo Bunko* 49, pp 1-25, p 18

⁶¹ She intimates that ‘the use of the term one tale of silver as synonym for 700 wen of copper cash signaled the beginning of the seventy per cent custom’, but the discontinuation of such rate did not affect the extent of the custom. Kishimoto, “The Seventy-Percent Cash”, p 4

inside China, and in a variety of contracts -particularly in Fujian and Guangdong and gradually penetrated in Jiangsu and Zhejiang appearing in land and tea contracts in the domestic market⁶². In the early 1800s the coin became well known and used also in Zhejiang, Anhui and Zhili, given that the maritime trade was the primary source of the silver. By 1850 reports found it was current in Guangdong, Shanxi, Guangxi, Jiangsu and the SE of Yunnan. In every sizable town there were *yin dian* or money shops, and numerous shroffs and money changers were employed in silver currency deals. Trading with silver and money involved all range of people, from private banks and pawnbrokers to commoners. Crucially, the Carolus was in high demand in the export producing regions along the Yangzi river. Even Chinese who engaged in the junk trade to Batavia preferred this coin to send their remittances home.⁶³

Private papers from the Lai family – and their partnership with the Wang family, both merchants of Quanzhou of Fujian- offer some insight into this issue. The documents, four deeds dated in 1775, 1826, 1850 and 1865, show well how different heads of the household allocated their monetary assets. It may not be surprising that the author of the 1826 deed, was an accountant whose first business in 1796 was a shop for exchanging silver. Later he prospered in the sugar business and when he died, he had savings and debts denominated in silver dollars besides real estate and utensils and investments. He had acquired by mortgage twenty three stores, and the mortgages were denominated in coined silver for the amount of 8,000 pesos. He lent money as well, and having invested “300 dollars (sic) pesos capital, he collected 94 dollars (pesos) in return fourteen months later, giving an annual return of 23 % after accounting for the fact that *the latter dollars were lighter than the former*”⁶⁴.

According to the scholar who found the papers “four kinds of money are referred to in the manuscripts: bronze cash, imported silver dollars, local taels and Kuping taels. The first was used only for small transactions. Among the other three there was a conventional ratio of 12 dollars = 10 local taels = 8 Kuping taels, and “this may be taken as a rule of thumb for conversions”. Actual exchange rates varied, especially since there were different kinds of silver dollars. The accounting unit in the 1826 and 1850 deeds was dollars, in the 1865 deed Kuping taels and although no single unit of account was used in the 1775 deed or 1776-1810 property list, the taels referred to were almost always local taels. In the 1803-27 property list dollars were used, but their weight per unit as

⁶² Gong Yibing found contracts denominated in yuans –a land deed- dated as early as 1757 and offered other examples from Tang ed., *Mingqing Fujian Jingji Qiyue Wenshu Xuanji*, no.04706, p.385. The earliest one in Longxi is dated in 1762; the one in Yongchun in 1758; Jinjiang in 1784; Quanzhou in 1799; Yunxiao in 1817. Yang ed., “Minnan qiyue wenshu zonglu”, no.38, 107, 244, 732, 874. “The Silver Monetary Structure of Fujian” pg 13 fn 56.

⁶³ By the late 18th century the sums amounted to 50,000 reals, and in 1798 the Dutch governor general limited the export of silver dollars to 20,000 a year once ‘the treasury threatened to become completely depleted’ L. Blusse, (2011) ‘Junks to Java’ E Tragliacozo & Wen Chin-Chang (eds) *Chinese Circulations, Capital, Commodities and Networks in Southeast Asia* (Durham) p. 285.

⁶⁴ M. Finegan, (1978), ‘Merchant Activities and Business Practices as revealed by several manuscripts from Fukien’ *C’hing shh wen-ti*, 3: 9, p 77. This fine material allows to trace the fortune of the family which deteriorated, according to Finegan because of the extent in which they engaged in lending, despite that the main activities of the family was money changing, pawn-broking, sugar trading

a percentage of a Kuping tael was generally given.” Judiciously the author did not make any attempt “to convert the different monies to one standard”⁶⁵.

Another set of sources analyzed by Kishimoto, the papers from a pawnshop from 1795 to 1820, made distinctions between different kinds of “seventy-percent cash” as “seventy four”, “seventy seven” and “eighty” suggesting a different notation for different type of coins involved.⁶⁶ Intrigued by the extent of the “custom”, Kishimoto paid less attention to some slight changes throughout time. Her notes echoes what Wells had observed about different rates of the coin “at Tientsin (Tianjin) and Niuchwang (Yinkou) the usual exchange is 70 taels weight of silver for 100, which is nearly at par value; while at Shanghai, where they are better known they range from 74 to 81 taels per 100; and still at Guangzhou where they are best known they are rarely worth over 72 taels for 100”.⁶⁷ The timing for the appearance of the custom is consistent with the increase in the availability of Spanish American Coins; and the references in the individual transactions she recorded mirror the variations in the quality of the standard as happened to be observed in the circulation of the coin.⁶⁸

Apparently the “seventy per cent cash custom” did not extend to all kinds of transactions, as it seemingly was not used in the trade of staples. But it was very frequent in accounts of credit and lending businesses. It was thus applied mostly in transactions that required a longer time frame rather than in on the spot purchases. If the ‘seventy percent cash’ or the equivalent to the Spanish American silver peso coin was the established standard of value, this should come as no surprise. As is the case in countries with “dolarization” today, the use of the standard be it the US dollar or the Carolus, is independent of the physical existence or circulation of the actual coin. The Carolus seems to have been the monetary anchor of a great deal of transactions in China’s domestic economy, even if only a sub-set of transactions physically involved the coin.

Modern experience with dollarization offers a hint how the actual availability of Carolus coins impacted on the price levels. It is well known that scarcity of the external monetary standard coin (o US dollar bill today) leads to hoarding which in turn aggravates the scarcity because the velocity of circulation falls in addition to a fall of the quantity of money.⁶⁹ Hence a deflation of asset prices

⁶⁵ Ibid, p 77 and fn 4 and p 87, in particular.

⁶⁶ ‘Ultimately the total was recounted in weng so these papers should indicate the exchange rate of the silver coin with copper as well’. Kishimoto,, “The Seventy-Percent Cash”, p 16.

⁶⁷ ‘Dollars even of the same weight and purity are not received alike by the Chinese; thus at Chusan and Ningpo, during the war of 1842, republican dollars passed more freely than Spanish dollars; but certain coinages of the latter in the reign of Carlos III, called Old Head Carolus, if uninjured used to bear a premium, sometimes at Guangzhou as high as 12 per cent; while undefaced Ferdinand dollars were only a little above par; or chopped dollars’ one kind of Spanish pillar dollar bearing a stamp of the letter G called in Chinese *kau tsien* was at the same time received at a discount, sometimes as great as 5 per cent’ Wells Williams, *The Chinese Commercial*, p 268

⁶⁸ At the same time that (English) East India Company adjusted their accounts to the appearance of the Carolus, some cloth merchants of Nanhsiang (Nanxiang?) town in the Jiading district directed in 1795 the conversion to the new rate in their payments for wages to overseers and equipment of household goods. According to Kishimoto wages were not paid in copper again. Ibid, “The Seventy-Percent Cash”, p 20

⁶⁹ When the Argentinean government imposed severe capital controls in 2012 making it extremely difficult for private individuals and firm to obtain US dollars the prices of houses and other large assets immediately

denominated in that currency standard has to occur. Thus paradoxically deflation in Carolus denominated prices could occur even if actual transactions were not performed in that coin. I would argue then that the observed “silver deflation” describes this phenomenon. That is it was caused by a fall in prices denominated in Carolus rather than in silver bullion outflows.

This offers an alternative explanation for the silver deflation of the Daoguang period which has hitherto been explained by a general silver scarcity supposedly caused by the massive inflow of opium from Bengal. However as Lin-Man-houng has shown there is an issue of timing. Silver imports, which at this point consisted largely of the imports of coins from North America dropped dramatically before the surge in imports of opium, as graph 3 shows. **(See Graph 3)**

As interpreted by Von Glahn and others, silver imports by China were demand driven, and as argued here, this was, or became, a demand for a certifiable means of payment rather than for bullion. Lin Man-houng rightly identified the moment imports stopped. However, there was plenty of silver in the international economy at that time. Imports fell because after the mid-1820s the quality of silver coins arriving to China became very uneven, not because there was a silver shortage at the supply side. Opium imports surged only after silver imports declined posing a challenge to the traditional supply-side account for China’s silver problem. Seemingly opium filled in for silver, rather than the other way round, making it difficult to blame opium for de-silverization, as Lin rightly argued.

This was not, and had never been, a problem of the balance of trade as a US merchant wrote to the British Consul in Shanghai in 1856

“The Chinese of this vicinity and indeed throughout the central provinces, have for a long period been accustomed to the use of the Spanish [American] silver coin known as Carolus dollar .. but the production of these coins has long ago ceased, and owing both to the large annual loss caused by stamping and melting practiced in China, and to their extensive dispersion among this numerous people, they are now so scarce as to be wholly insufficient for the ordinary requirements of trade. Nevertheless, the Chinese, averse to change, and attached to a coin whose fineness, uniformity and inscriptions they have become familiar, and which moreover seems to be **the value best suited to their wants**, refuse to do business with any other ..not only our commerce, but the interior traffic of more than 50 million of this people is seriously encumbered by this prejudice. .. for a long period to the year 1853, she was obliged to export a large amount of silver annually to pay for the excess of her imports over her exports. Yet during that period current coin **constantly bore a premium over its value as silver**, and in the case of the Carolus dollar their premium ranged from 10 to 15 per cent. We conclude therefore that **the present condition of the currency has little, if any connection with the so-called balance of trade**, but it is consequence almost entirely of the partiality of the Chinese for a scarce coin”⁷⁰

plummeted. Though officially Argentina abolished dollarization in 2001 the public continues to price assets and large transactions in US dollars.

⁷⁰ British Parliamentary Papers, (1857-58) (287) “Silver, & c. (China) Copies of correspondence received at the Colonial Office and the Foreign Office upon the subject of the supply of silver in the markets of China” nro 28

When the coinage of Carolus coins stopped the demand for the old coin rose initially, but they started to circulate with alternative republican coins which appeared in the international economy and which were not considered equally good. So imports collapsed. At this point it became clear that Carolus was a fiat money as the premium it enjoyed in China went further over its intrinsic value.

By the 1820s the appearance of inferior (republican) coins confused the standard and aggravated the problem further. In order to establish the standard silver coins started to be chopped and stamped and every intervention in different transactions added chops to the coin prejudicing the wholeness of the piece⁷¹. Without coinage of such coin since 1808 the nature of the silver problem in China revealed itself in full. By the 1850s the problem was acute.

Again, as the editor of the Chinese Repository explained in 1863

“The broken dollars in circulation being always taken by their weight do not differ materially from sycee silver. The only difference is that the former has a fixed, the latter an uncertain standard or purity, and dishonestly practised with the former does not require the labor, and is more readily detected then when practised with the solid ingots of the latter⁷².”

Chopping which should be a good estimate for the velocity of circulation put the integrity of the coin in jeopardy and discouraged the circulation of the coin, aggravating further the monetary situation. Yet, “chopped Carolus” were preferred to sycee, which explains its persistence in circulation. Other coins, less preferred and circulating at discount, ended up melted down into sycee.⁷³ By the late 1840s and 1850s distinctions were made between the full or chopped Carolus coins, and the latter seemed to be more prevalent in the southern ports and the full bodied coin more common in the northern ports. At some point, but for very different reasons than Kindleberger had in mind, Chinese people started hoarding the full Carolus coin.⁷⁴ In this context, deflation of silver prices was inevitable.

The preference of the Chinese for the Carolus was visible in the exchange rates the coin fetched over silver bullion and other comparable silver coins. As noted above, during the 18th century the Spanish American coins were taken at the famous 70%. However already in 1797 Morse reports that they were at par with sycee⁷⁵. From 1811 the same source indicates that the coins enjoyed a premium over sycee despite their lower content of fine silver, and in 1829 the premium was already around 6 to 8 %. For the Company this was a chance to export sycee as a result, as Morse recorded in the 1830s.⁷⁶ The premium only continued rising in the 1830s to 14 and

E. Hammond, to the Secretary of the Treasury, 6th January 1857; Enclosure 1, 28 ‘Report of US merchant houses to Consul Browning, Shanghai 5th November 1856’ N28 pp 56-59.

⁷¹ Citing Morse, *Chronicles*, II, p 324; King indicates that ‘the practice of chopping was universal in Canton in 1799’, *Ibid*, *Money and Monetary Policy*, fn 42, p 261

⁷² Wells Williams, *The Chinese Commercial*, p 267.

⁷³ It is very telling that all known images of surviving chopped coins feature a Carolus specie.

⁷⁴ A simple test on electronic marketplaces for ancient coins would return the largest number of such items offered on sale from China and Guangdong.

⁷⁵ Morse, *Chronicles* II p 279

⁷⁶ For 1829 see Morse *Chronicles*, III 161-62; for the 1830s *Chronicles* IV p 60, 227.

15%, and in the 1850s it was 20-30%, as Eduard Kann reports for 1852.⁷⁷ The rate overshoot at the time of the Taiping when it went up as high as 50%, yet in 1863 the coin still enjoyed a premium of 15% upcountry⁷⁸.

The difference with sycee silver mirrors the exchange rates between the Carolus and sterling. Reports from British Consuls in the ports, particularly after the Treaty indicate that sterling suffered discounts as did the US dollar and the Mexican peso vis a vis de Carolus. Whereas in the international economy the standard exchange rate for the Spanish American peso was, and had long been, 50 pence (4s 2d). In China the parity varied as seen in **Table 1**.

Again, the *Chinese Repository* reported that "At Amoy (Xiamen) in 1850 a Spanish (American) dollars would purchase 3,600 pieces of the poorest kind (of copper cash), but only 1,300 selected ones to take to Bali, or 1560 of current ones as they run on the strings. In Guangzhou; at the same time, a dollar bought about 1,200 current cash; and at Shanghai 1,750. In 1863, a dollar at the same three cities would exchange for 1,100, 1,050 and 1,100 pieces."⁷⁹ Thus, the demand for a disappearing coin ought to put extreme pressure on the copper coin leading to the coinage of large denomination copper cash in early years of Xianfeng, hence the copper inflation.

If the monetary situation was such then it should not be surprising that most of trade turned to "barter"⁸⁰. Credit was unstable and risky as the fate of the Fujian merchants attests, investments had to stop, exports to stagnate and overall business ought to decline. Yet, how to explain the outflow of silver in this gloomy context? Cultural historians would probably favour a psychological explanation for the consumption of drugs in these circumstances. However there were strong monetary forces at work which could explain the ongoing de-silverization of China, and the subsequent alterations in the copper silver rate of exchange.

A Trojan horse

The *Trojan horse* argument derives from the fact that after 1808 no more Carolus were minted. For a while that did not matter because the stock of the coin in the world and in Spanish America was so large that merchants could continue to export Carolus in large quantity to China. The problem was that from the mid-1820s or the 1830s onwards this got mixed up with other coins originating in republican South America, which challenged the faith in the coin in China. The appearance of coins with obvious differences in weight, fineness and aspect brought a growing

⁷⁷ E. Kann, (1927), *The Currencies of China. An investigation of silver and gold transactions affecting China.* (Shanghai) p 128

⁷⁸ Hao, *The Commercial Revolution ...* (Berkeley) p 39

⁷⁹ Wells Williams, *The Chinese Commercial*, p 267

⁸⁰ Hamashita explains this as a result of a combination of two factors – the shortage caused by an unrelenting outflow of silver as the chief means of trade settlement and lack of other means of settlement because of trade expansion' *Ibid*, "Trade Finance" p 417.

diversity and increasing uncertainty forcing people to check the standard of the coin, hence the chopped Carolus. With multiple competitors, the demand for Carolus – as best known, most reliable, hence most current, though not necessarily with the highest content of pure silver- suffered. Theoretically being the standard of value this should have exacerbated the rise in the exchange rate with any other alternative monetary instrument, like the exchange rate of copper *weng*. There is fragmentary quantitative evidence on this rapid progression, as shown in the exchange rate. But the qualitative evidence seems even more conclusive, as will be shown.

V

But this distortion also had other effects⁸¹: because there were less and less Carolus available, the trade at premium for sycee was becoming less feasible, although the premium kept rising. At that point foreign merchant needed something else to sell in China, and that was opium. This particular conjuncture helps to explain the timing of the boom in opium imports and the concurrent de-silverization of China

In the same 1984 article Hamashita described the widespread speculation in silver exchange among UK merchants in Asia at the time. The Calcutta mint estimated the content of silver sycee to be 15% more valuable than the silver coin of the same weight. "Hence the exchange rate in Guangzhou was only 7% higher than the coin (giving the silver content of the coin). This led private trading merchants to focus on the sycee as a profitable medium of remittance to India".⁸² He did not elaborate on what was traded in return, but in the reference to an Imperial rescript sent to the governor general of Liangguang as early as 1829 Hamashita quotes the following:

"On the pretext of selling goods, foreign ships loaded with foreign currency come to the ports of the several provinces to purchase sycee. In the interior, silver currency is dwindling in volume and foreign currency is growing more abundant each day. In recent years, as a result of this situation the value of silver has been rising daily. Opium, also, is much in demand in the interior, and the number of smokers is increasing day by day"⁸³

⁸¹ Making a similar argument for a later period (1866-1928) Bailey & Zhao analyzed the 'substantial' premium the Carolus enjoyed over the melting point value in China. They measure the 'melt premium' – market price of a coin in excess of its value as bullion, and the coin premium, namely 'the difference between the price of a coin expressed in Shanghai taels and the value of that coin's silver content computed as the London melt value times the Shanghai tael per UK pound exchange rate' Ibid., "Familiarity, Convenience and Commodity Money" p. 3

⁸² Hamashita offers other examples 'the British Bell & Co purchased, outside of China, Carolus dollars priced on parity with several other silver coins of the same purity and sold them at Guangzhou at 14 to 15 per cent. The same company also bought Mexican and South American dollars in Guangzhou at a reduction of 6 to 7 percent and the subsequent transactions reaped them as much as 20 per cent profit from the speculation on silver'. Ibid, "Trade Finance" p 395.

⁸³ Also "the reason why there is an outflow of silver is that the Guangdongese like foreign currency and have a proclivity for using it that is gradually spreading to Jiangsu and Zhejiang. Thus the foreign merchants secretly use sycee to purchase foreign currency, and then they engage with commerce with tea merchants from

The suggested connection between trading in coins for sycee and opium was again made explicit by a memorial by the Government of Guangdong to the throne dated in August 1830.

“In answer to an imperial decree in which opium is referred to in connection with the drain of silver, foreign ships, under the pretence of carrying on traffic in merchandise but especially for the purpose of bringing foreign money, come to the sea ports in the several provinces, and purchase sycee silver, **so that the silver of the interior is daily becoming more scarce and the foreign coin every day more plentiful. Furthermore, opium flowing into the interior**, is all in consequence of foreign ships laden with it, sailing to Macao, Amoy and other places, where they can cast anchor; here they either clandestinely connect themselves with the clerks or runners who undertake to aid them in introducing (opium) through the custom houses”⁸⁴

In fact all observers agreed that large amount of silver were sent to India, as is well known. However not all the silver was the same. The large amounts of bullion that was sent to India up to 1853 were done in broken dollars and bullion, but chiefly in the form of sycee. Graph 4 below complement the evidence from Chinese sources about the relation between the trade in silver coins and sycee, on the one hand, and the silver trade in return from opium on the other. It suggests that most of the opium received from Bengal was in fact paid with sycee rather than in coin, or full-bodied “uninjured” coins as advanced by Hamashita. The same source does not specify what coins (“dollars”) were used in payment; that is if they were full bodied Carolus or chopped coins of lower appreciation minted in post-independent Spanish America; which likely accounted for a substantial amount of the coin imported between 1810 and 1825 seen in graph 1 above. (See Graph 4)

With Carolus circulating at premium in large parts of China it is unlikely that these coins were present among the silver coins exported for Opium. The same criterion appears in the records that Jardine Matheson and Co kept their deals in silver: they used different units of denomination for different type of transactions. In the early 1860s the largest importer of Opium to China and one of the most active traders in silver in China discriminated in the bookkeeping as follows: “House expenses” were recorded in Spanish dollars, “Payments for Opium and sugar” in Spanish dollars, “Payments to the colonial office” in Mexican dollars, “Carolus sent to Shanghai”, “Spanish pesos sent to Foochow (Fuzhou) and Canton (Guangzhou)”, “Sycee for Bombay”⁸⁵. Most of the papers in the collection fall beyond the period under study; however from a quick inspection, reference in the earlier correspondence offers abundant evidence on the exchange rates which ought to allow the arbitrage between Carolus and sycee.

But these references do not fully make the case for the imports of opium in return for the silver arbitrage, despite of Matheson commercial and financial pursuits in China. Then the observed

Jiangsu and Zhejiang/ that activity is pushing up the value of foreign currency”,’ according to Guizhou district inspector’s report of 1822. Ibid fn 19, p 428

⁸⁴ Morse, *Chronicles* vol IV p 226-27

⁸⁵ “Bullion accounts and reports. Documents. Bullion accounts Hong Kong 1847-1868 with bullion account from the Lady Theyes in Macao 1843” Jardine Matheson Archive in Cambridge University Library A8/96

timing of the opium inflow and silver outflows become most relevant⁸⁶. As indicated by Lin Man-houng – and insinuated in graph 3 which only shows the import of silver for the period they were recorded at Guangzhou as the single port of entry to China. By the mid 1850s the flow of silver coming into China started to grow. Indeed, as recorded in the literature from 1853 a series of concerted actions by westerners allowed for the steady introduction of silver, in the form of Mexican coins, into China⁸⁷. Mexican pesos were used to form the silver reserves of the newly established banks in Shanghai and progressively the Mexican coin, now with a comparable stable standard, was filling in the demand for the Carolus, although in the interior of China this coin still commanded a premium until very late, as mentioned above. Slowly silver returned to China and the exchange rate turmoil of the Daoguang era receded, as seen in graph 2. The existence of another acceptable stable silver standard explains then the renewal of silver trade. Yet, what happened with opium?

Lin again, showed that there is a correlation between both goods. As silver returned Opium imports started to diminish as seen in graph 4. This timing of the (lack of) appetite for imported opium is revealing. The volume of imports almost doubled every decade in the Daoguang period up to 70,000 piculs in the 1850s. The trend stopped in the 1860s despite steady falling prices, and even diminished in the decade to about 63,000 piculs average. During the 1870 stabilised around 70,000 piculs until 1892 that started falling sharply. By then China had started growing opium to a considerable extent. According to Lin Man-houng home grown opium went from 9,000 piculs in 1847 to 16,500 in 1866, and 27,500 in 1876 and further to 30,000 piculs. By 1870 the production of home grown opium matched the volumes of imported opium⁸⁸. The timing of opium imports and of the domestic production is suggesting that China consumption moved to a domestic source when relative prices with silver turned unfavourable⁸⁹. This is no more than a variation of import substitution cultivation and offers evidence for the case that opium is very much an ad-hoc element in explaining the de-silverization of China – and the Daoguang depression.

⁸⁶ The same trend is observed in the cultivation of Opium in British Bengal. Poppy growing areas jumped from 45,500 *bighas* in 1808s and 1818 to 127,000 in 1828 and further 282,800 in 1838. At the same time opium shipments increased in proportion as much as the Bengal government revenues from the trade. Tan Chung has estimated that 72% of the value of opium imports from Bengal during 1795-1840 was paid with silver. Until 1827 Opium made 40% of India exports to China and was second to cotton. After 1827 the ratio opium cotton was 7:5. Tan Chung, (1974). "The Britain, India Trade Triangle (1771-1840)" *Indian Economic Social History Review*, 11:1 pp 411-31; specially tables 3,4 & 6.

⁸⁷ Wells Williams, King and others talk of a massive concerted introduction of about 12,000,000 Mexican pesos at once in 1853.

⁸⁸ Lin, Man-houng, (2005) "China's "Dual Economy" in International Trade Relations. 1842-1949" in K. Sugihara, *Japan, China and the growth of the Asian international economy..* pp 182-83. Because native opium was mostly cultivated in backwards rural areas and sold in prosperous coastal regions Lin argues for a substantial redistributive effect within the Chinese domestic economy. Several important distribution centers were outside of the Treaty Ports. Lin Man-houng (2009) "China's native opium market, 1870s-1906" paper presented to the IEHA Congress Utrecht.

⁸⁹ Furthermore, scholars have found that there is no relation between the price of opium or the effects of prohibition by the Chinese government and the export of opium from Bengal See C. Feige & J. Miron, (2008). "The opium wars, opium legalization and opium consumption in China," *Applied Economics Letters*, 15:12, pp 911-913

Another was the understanding of the Lu Tsiuen-sun (Lu Quansun), Governor of Fujian – as recorded by the British Consul in Shanghai

“...in the province of Kiang-nan, in which he (Lu Quansun) was born and brought up, he observed that the foreign money in use among the people was greatly esteemed, **and valued above sycee**; the reason of which is difficult to explain. The perfect coins of this money weight 7m2c. ..When assayed each piece only gives 6m 5c pure silver. ... In Fuh-kien (Fujian) and Kwang-tung (Guangdong) **chopped dollars are much used**, and although greatly defaced and injured, **their value is equal to that of sycee**. In Che-kian (Zhejiang) and Kiang-soo (Jiangsu) the chopped dollars are not current, but a kind called bright money is preferred. Originally a dollar was worth upwards seven mace; the value gradually rose to eight mace and now it is nine. It is not only in large cities that persons who understand this money are to be found, but they also exist in every country village. **With sycee, the reverse is the case** for it needs a shroff’s establishment to decide its purity and weight. They are always taken in payment of the taxes by the local authorities. Thus it is shown that his foreign money, which, when the alloy has been subtracted contains but 6m 5c of silver, exceeds in value 9 taels of chinese silver. Here is, on the one hand, a great source of gain; as it is, on the other, **a cause of the efflux of silver from the country**”⁹⁰

Even though the renewals of silver imports after 1853 turned the flow of silver back into China this was no immediate solution to the ultimate problem that China had. Besides the Taiping rebellion, the 1850s were critical years, in particular for the export economy, as the latter was most affected by the relation that China had with the international economy. King described how the premium on the Carolus persisted in the tea and silk districts and in Shanghai, despite the changes at the coastal cities that the renewed trade brought about. Relatively quickly the Southern ports managed to establish another silver standard, to which Western merchants and (soon to be) bankers decisively contributed, with the introduction of the Mexican coin, like in Guangzhou and Hong Kong initially, and to some extent in Shanghai later in the decade. Finally the Spanish American coin started to be “demonetized”, namely to lose the quality as a standard, and becoming “an imaginary money”. However this did not end its role as money. The demand of silk producers in the interior was still siphoning Carolus from Guangzhou and Hong Kong to Shanghai first, and later further from Shanghai to the interior, where the coin still bore a premium over sycee; and this was so a long period of time afterwards. Allegedly there were reports about the burial of Carolus coins as “precaution against the Taiping rebellion”. At that point, in 1856 and 1857 the rates of exchange of silver with any other means of payment skyrocketed⁹¹. Still in May of 1877 silver tael quoted over 1,500 copper *weng* in Shanghai⁹².

⁹⁰ “Memorial by Lu Tsiuen-sun (Lu Quansun), Governor of Fuhkien (Fujian), Extracted from the Peking Gazette 7th November 1855”, enclosed in a letter of John Bowring to Earl Clarendon, Hong Kong 21 March 1856, Enclosure 27 p 54. BPP (1857-58) (287) “Silver &c”

⁹¹ King, *Money and Monetary Policy* p 172. Officially but not in actuality Guangzhou and Shanghai abandoned the silver coin standard at the time, for the use of official taels. But this still was a diverse ‘monetary’ system which remained fragmented for the rest of the century. Thereafter the southern ports relied more on Mexican dollars meanwhile Shanghai was becoming the financial hub of the late Qing period.

⁹² See fn 55.

Conclusions

This paper has argued that the reasons for the de-silverisation of China in the Daoguang period only become clear when we account for the differential demand and supply of silver bullion and silver coin. Given the peculiar absence of a Chinese produced standard silver coin, private agents turned over the 18th century increasingly to the Spanish peso, the only reliable standard coin that was available in the world economy in very large quantities. By the late 18th century most of China's silver imports consisted of this foreign coin not of bullion. Whether as actual coin or as unit of account the peso performed well as a standard unit until at least the mid-1820s. The quantitative evidence shows that US merchants dominated the intermediation between colonial Mexico and China by the turn of the 18th century. As shown in Graph 3 above silver imports continued to increase until the early 1820s. However, the available evidence of exchange rates between Carolus coins, other European silver coins and sycee also illustrates that this foreign money supply, even in the late 18th century, did not fully match the increase in demand. As the Chinese economy grew over the second half of the 18th century both in terms of population and with increasingly integrated markets, Carolus coins traded at an increasing premium over their silver content⁹³. Contemporary reports confirm that the Chinese considered the advantages of a reliable standard coin available in a reasonable fraction for larger transactions sufficient to pay a sizeable premium over its silver value.

As long as Carolus were minted in large quantities in Spanish America the arbitrage that US merchants could realise in the trade was sufficient to foster imports. However the reliance on a foreign coin as a currency standard became a major problem when Independence led to the foundation of a number of competing Spanish American republics. In order to finance their internal and external conflicts Spanish American governments turned to debasements of the peso. The once reliable standard broke and the Chinese were quick to discover that the new coins which began to appear in the 1810s were unreliable. Full-bodied old coins were hoarded and became rarer still driving their premium to new heights over the next three decades. Initially enough Carolus were circulating in the Americas and elsewhere in Asia for merchants to take advantage of the rising arbitrage margins as the reports from India for example have shown. But increasingly the new republican coins – and all sort of imitations- entered the market.⁹⁴ Either because of their poorer quality or 'unacceptable' appearance they were just rejected; hence new coins were chopped to distinguish the Carolus from the 'unacceptable' coins which ultimately were melted down. They had stopped to perform as a standard, and the premium for Carolus increased even further. The poorest examples of these new coins therefore became little more than another form of silver circulating in China, which had to be checked for fineness and quality in every transaction, and ended melted down eventually.

⁹³ Economic historians of China have not fully considered the reduction in transaction costs -conducive to greater market integration- from the circulation of silver coins in China throughout the 18th century. Because they focus on silver as commodity they may have also overlooked the prejudicial effects in the performance of the economy that the disintegration of the currency standard ought to bring about after the 1820s. See Irigoien, "The end of the silver standard"

⁹⁴ Britain, France and later the US minted special 'dollar (English for peso) coins purposefully for the Chinese market in the second half of the 19th century. Kann, *The Currencies of China*, pp 136-139.

The dramatic fall in demand for the imports of Spanish American coins is clearly visible in Graph 3. The Chinese demand for silver up to the 1820s was primarily a demand for a reliable currency standard not for bullion. The commercially integrated parts of China had thus been at least partially “dollarized” in the same sense in which today many countries are informally dollarized. The peso (also wrongly called dollar in English) was established as a means of denominating a substantial number of forward-looking contracts that stabilised asset prices. Any disturbance in the actual peso/dollar standard hence translated immediately into serious complications in the domestic economy of China. The sudden drop in supply of the qualitative good Carolus coin had to cause a deflationary shock, which was aggravated by the falling velocity of circulation, in itself a consequence of hoarding of good coins. This, in turn, put pressure on copper cash as demand for means of payment in the range of transaction formerly covered by Carolus was lacking. This pressure may explain in part the copper inflation of the Daoguang period.

At the same time the arbitrage trade out of India of pesos for sycee came to an end. The rise in Opium imports into China, which took off *after* the silver trade had plummeted suggests, that merchants turned to Opium as a substitute for pesos, or that Opium was an alternative source of sycee. Without a centralized market for exchange, as the multitude of money-changers attest, which might have allowed to trade coins for sycee, the arbitrage translated into pricing and the exchange of sycee for opium realized the gains for importers. As shown in Graph 4 Opium was overwhelmingly paid for in sycee, which thus continued to flow out of China but now in return for Opium rather than pesos. This explains the timing of both the rise and the decline of the Opium trade. In the early 1850s a number of Western merchants combined their efforts to reintroduce another reliable foreign currency standard in China. With the stabilisation of the political situation in republican Mexico the Mexican Eagle dollar then offered for the first time a possible substitute. Imports of coins increased again, the silver/copper ratio in China began to fall and – crucially – Opium imports began to drop off and a serious effort at import substitution in opium production took off in China.

In the end, the Spanish American peso turned out to be a Trojan horse for the Chinese economy. The over reliance of a foreign supply of currency standard turned out to be a disaster when events entirely outside the Chinese sphere, namely Latin American independence, caused this standard to falter. Just as a collapse of the US dollar would today wreak havoc across informally dollarized economies in emerging markets countries the collapse of the peso standard led to widespread dislocation of production and markets in China in the first half of the 19th century.

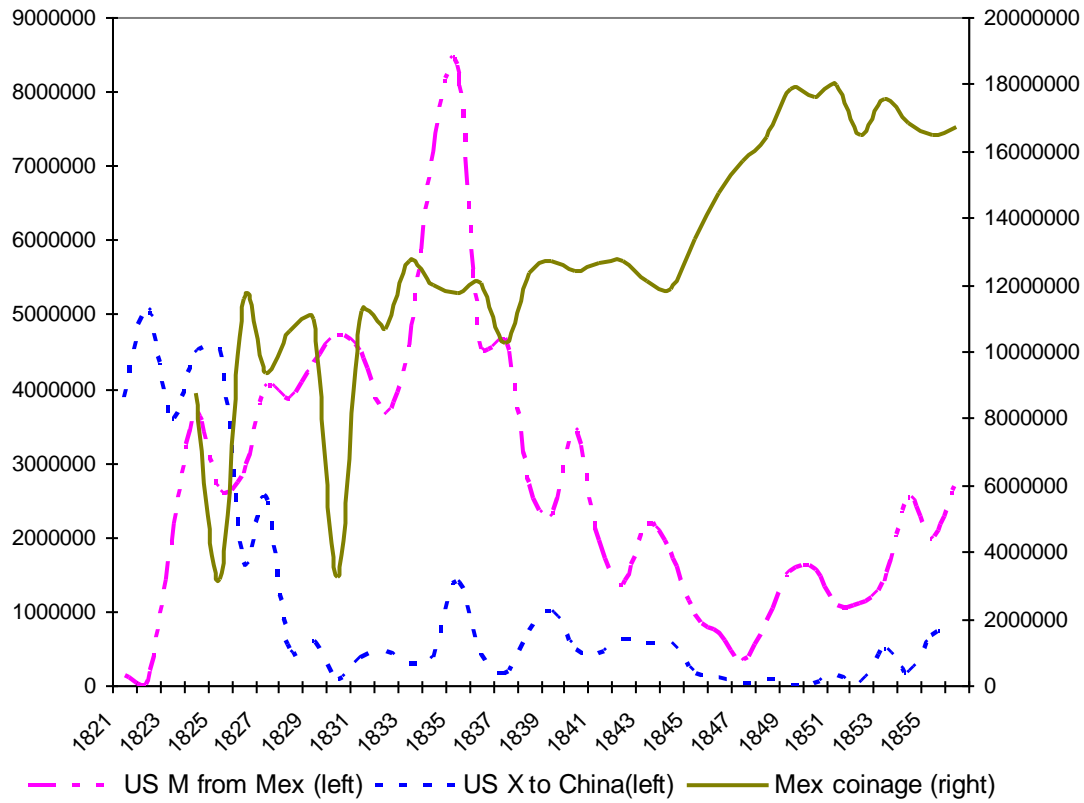
Figure 1: A Chinese manual illustration helping to distinguish coins



Figure 2: Material available to Chinese merchants and money lenders to establish the quality and origin of the coin.

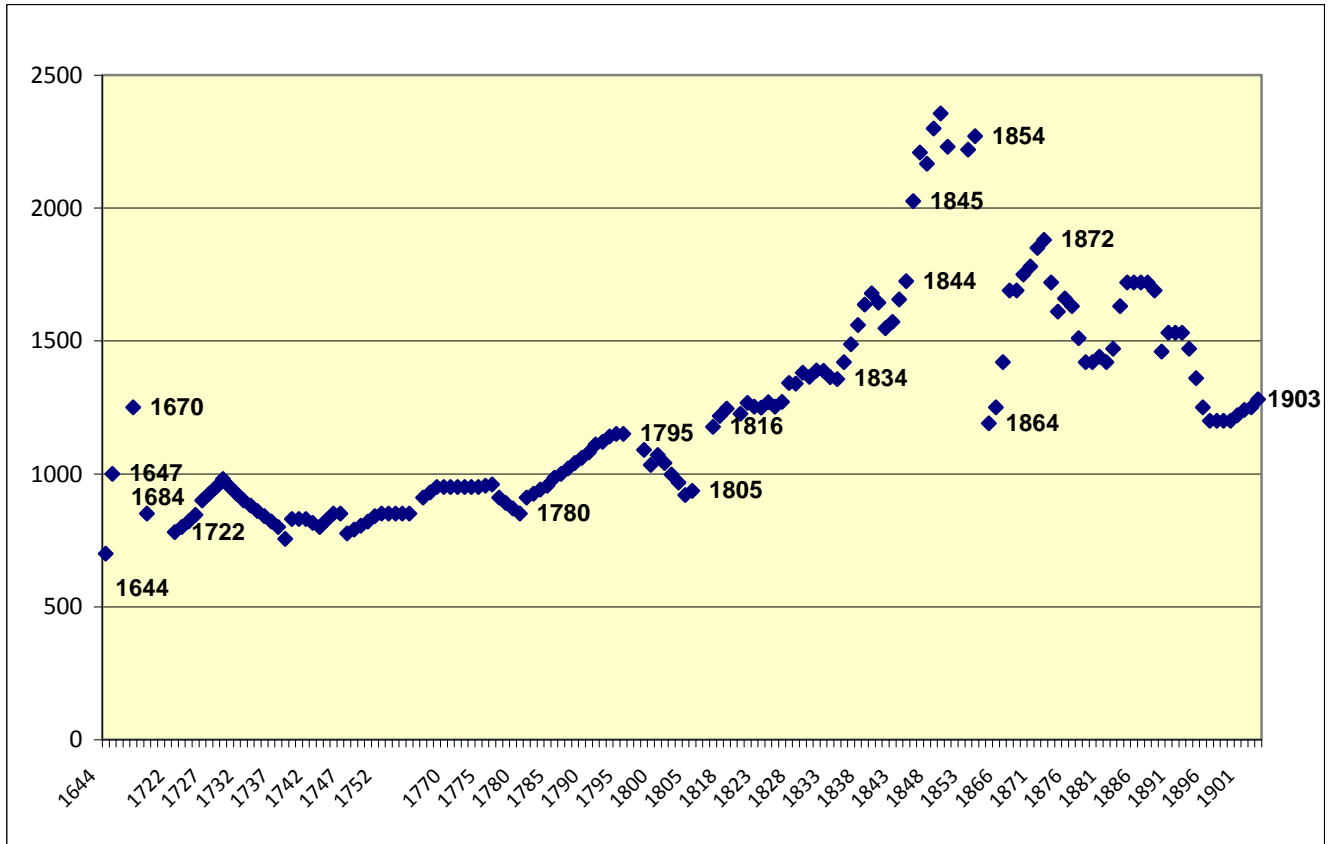


Graph 1: Silver flows: US imports and China imports (left hand side) and Mexican coinage (right hand side), annual figures in silver pesos.



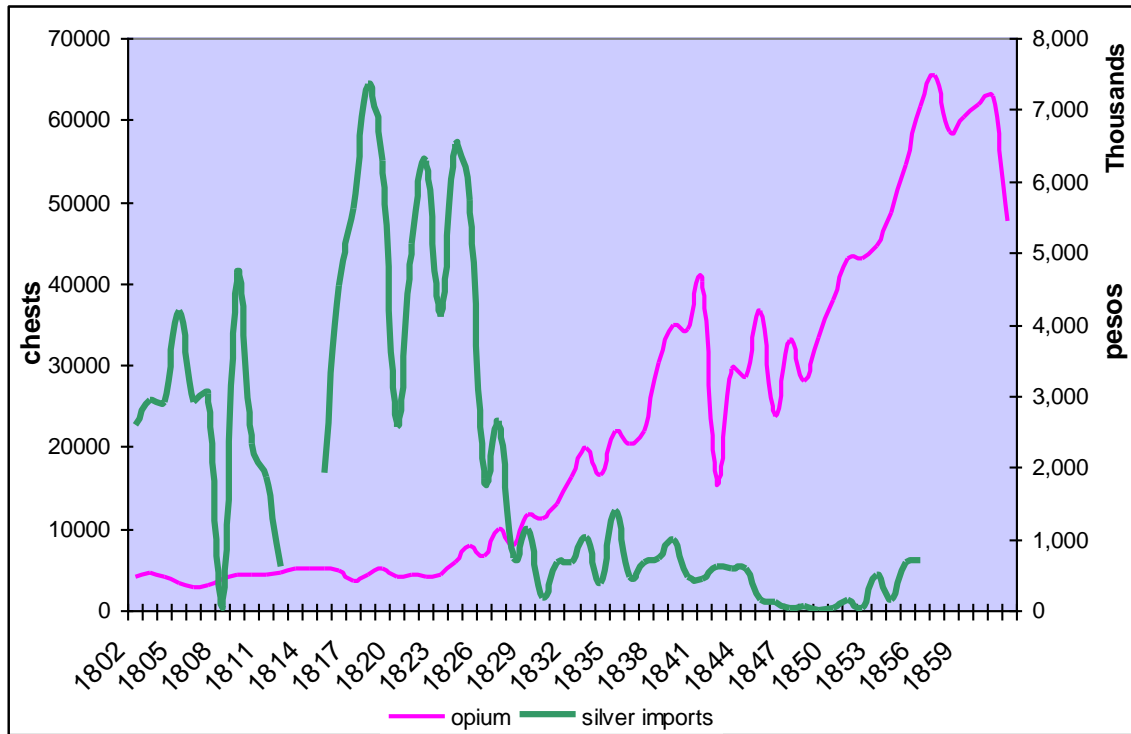
Source: Irigoin, "The End of Silver Era" (2009) please note the difference in the scales.

Graph 2: Copper - silver ratio China 1644-1903 (weng /liang)



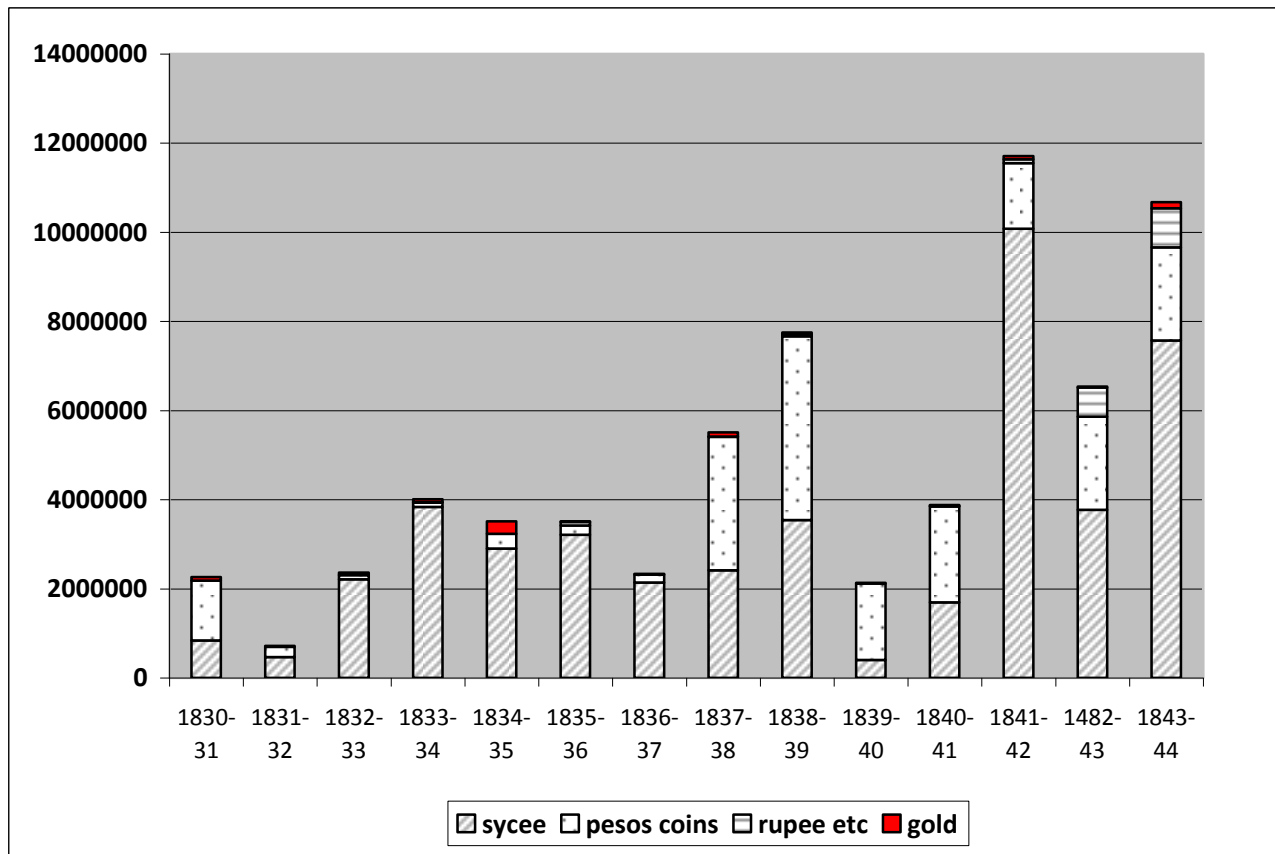
Source: Lin, *China Upside Down*, p 86

Graph 3: Opium and Silver Imports, China 1802-1865



Note: Silver imports through Guangzhou only. Source: Opium imports from Lin, China Upside Down, Silver from Irigoien, "The End of the Silver Era".

Graph 4: Value of the bullion imported from China to Bengal in return from Opium sales, 1830-1844 (in rupees)



Source: "East India and China. Returns of the value of bullion imported from China and the amount realized upon the opium sold by the East India Company, in the years 1830 to 1845, respectively. 1846". BPP (1846) (318).

Table 1

Year	Carolus sterling exchange rate in China
1808	60d - 64 d
1829	48d - 51d
1835	49d - 80d
1852	54d - 58d
1856	72 d - 93 d
1857	74 d-92 d
1877	83 d

Sources: BPP (1857-58) (287); for 1877, Bailey & Zhao, "Familiarity, Convenience" figure 2.