

**Foreign Silver, China's Economy and Globalisation of the
Sixteen to Nineteenth Centuries**

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Abstract

It has been suggested that Ming-Qing China was positioned in the very centre of the process of globalisation partly due to China's huge appetite for foreign silver and partly thank to China's capacity of exporting luxuries products for the rest of the world. The findings of this study challenges this new orthodox head on in that they show not only did China not imported nearly as much as foreign silver but also China did not go through the alleged silverisation of its own economy. Much of the silver imported from outside ended in pawnshops. China's every day market transaction depended heavily on the indigenous copper coins and credit money. So, silver did not create a commercial miracle for China.

A. The issue: silver and the 'global ReOrient' hypothesis

With an increasing interest in Asia in recent decades, it has become the new orthodoxy that China was a deserving world power prior to the rise of the West, with a package of advantages in: (1) its leadership in premodern science and technology;¹ (2) its unique socio-economic institutions including income redistribution and social welfare suited to a perpetual premodern agrarian empire;² (3) its high living standards;³ (4) its unrivalled market size in the pre-modern world and its Sinocentric 'world-system' dominating its seas and northern Indian Ocean long before the arrival of the Europeans.⁴

A recent trend for the reinterpretation of sixteen to nineteenth century world history has taken this one step further by putting China at the very centre of the globalisation, as China is viewed as (1) the largest single purchaser of world silver and a persistent supporter of a high global silver price and (2) a net exporter of luxury goods to the world, bringing a better material life. This was so much so that all the other players in globalisation were at the mercy of the 'China factor'.⁵ Two publications, *ReOrient* and

¹ From Needham to Hobson: Joseph Needham, ed., *Science and Civilisation in China*, Cambridge: Cambridge University Press, 1954–2003; J. M. Hobson, *The Eastern Origins of Western Civilisation*, Cambridge: Cambridge University Press, 2004.

² B. R. Wong, *China Transformed, Historical Change and the Limits of European Experience*. Ithaca and London: Cornell University Press, 1997.

³ See Bozhong Li, *Agricultural Development in Jiangnan, 1620–1850*, London: Macmillan, 1998; Kenneth Pomeranz, *The Great Divergence, Europe, China and the Making of the Modern World Economy*, Princeton [N.J.]: Princeton University Press, 2000. A great many works have supported such opinions and judgments, although they have been challenged occasionally, e.g. Angus Maddison, *Chinese Economic Performance in the Long Run*, Paris: OECD, 1998; David Landers, *The Wealth and Poverty of Nations*, London: Little, Brown and Co., 1998.

⁴ A. G. Frank, *ReOrient: Global Economy in the Asian Age*, Berkeley: University of California Press, 1998.

⁵ D. O. Flynn and Arturo Giráldez, 'China and the Spanish Empire', *Revista de Historia Económica (Magazine of Economic History)*, 14, 2, 1996, pp. 309–38.

Global Connections and Monetary History, 1470–1800,⁶ form a landmark for this school of thought. Their view is highly compatible with a recent re-assessment of China's economic performance,⁷ who argues that China was just another Europe until the great divergence separated them.

Against this backdrop, a hypothesis of the 'global ReOrient' emerges. In a nutshell, the story goes like this: (1) China was rich and full of surpluses for sale but lacked precious-metal resources to materialise its huge market potential; (2) China thus generated persistent demand for foreign silver;⁸ (3) the West and Japan rationally responded to China's demand by trading silver for consumer goods such as porcelain, silk and tea;⁹ (4) China's demand for silver prevented the world price for silver from collapsing and thereby sustained European global enterprises and colonial empires (mainly of the Spanish), and the economic prosperity of the West; (5) Chinese went for 'silverisation' by maximizing their commercial growth in an agrarian economy.¹⁰ Trade benefited both parties.

This is a neat story of two interlinking markets, with silver and oriental consumer goods as exogenous factors to respective parties playing central roles, seemingly accidentally, in both the West and China. Overall, the demand and supply of these two markets met simultaneously where foreign silver (S) equalled Chinese goods (C): $S = C$. The magic number, commonly cited, is a mountain of silver traded with China for the equal value of Chinese goods.¹¹ Not only that, China was the 'end market' for the world silver flow. The beauty is that the model is doubly demand-driven:¹² China hungered for silver and the West (with Japan), consumer goods. Such a model has a strong appeal for classical and neo-classical economists.

⁶ Frank, *ReOrient*; D. O. Flynn, Arturo Giráldez and Richard von Glahn, eds., *Global Connections and Monetary History, 1470–1800*, Aldershot: Ashgate, 2003.

⁷ Pomeranz, *The Great Divergence*.

⁸ There are numerous claims associated with this 'silver only' phenomenon. According to Morse, from 1699 to 1751 over 90 percent of the British exports to China took the form of silver, see H. B. Morse, *The Chronicles of the East India Company Trading to China, 1635–1834*, Oxford: Oxford University Press, 1926–29, pp. 307–13). Here, we take it as a fact.

⁹ In effect, the West also purchased large quantities of gold from China. However, the actual quantities have remained largely unknown, see Frank Perlin, 'World Economic Integration before Industrialisation and the Euro-Asian Monetary Continuum,' in H. G. Van Cauwenberghe, ed., *Money, Coin, and Commerce*, Leuven: Leuven University Press, 1991, pp. 315–48); Flynn and Giráldez, 'China and the Spanish Empire'; Richard von Glahn, *Fountain of Fortune, Money and Monetary Policy in China, 1000–1700*, Berkeley: University of California Press, 1996, pp. 83–142, 224–37.

¹⁰ Such judgement is often made by looking at trade links. For example, Atwell argues that because of the number of routes for silver shipping, China became a prime beneficiary of the silver boom in the New World, see W. S. Atwell, 'International Bullion Flows and the Chinese Economy, circa 1530–1650', *Past and Present*, 95, 1982, pp. 72–3). In Flynn and Giráldez's phrase, 'China did convert, both monetarily and fiscally, to silver, ... [silverisation] providing a powerful force in shaping the modern world.' (D. O. Flynn and Arturo Giráldez, "Born with a 'Silver Spoon': World Trade's Origins in 1571," *Journal of World History*, 6, 2, 1995, p. 218).

¹¹ The notion that one-third New World silver ended in China was put forward by Pierre Chaunu in his *Les Philippines et la Pacifique des Ibériques XVIe, XVIIe, XVIIIe Siècles*, Paris: SEVPEN, 1960, p. 269. There is a trend to inflate the share to half or even three-fourths, see R. B. Marks, 'Why China?' *Environmental History*, 10, 1, 2005, paragraph 2; E. N. Todd, 'Review of *The Origins of the Modern World: A Global and Ecological Narrative*', *Environmental history*, 9, 3, 2004, p. 532.

¹² In a demand-driven model, both the price and quantity traded increase simultaneously, the best scenario for market to grow.

But there is a problem: can evidence support this ‘global ReOrient’ hypothesis? So far, no serious tests have been conducted; which becomes the objective of this study.

B. Testing the ‘global ReOrient’ hypothesis

This paper looks at three areas with which to test the ‘global ReOrient’ hypothesis systematically: (1) How much silver did China accumulate over time? (2) How did silver function in the economy? And, (3) which sector possessed silver, and by how much? For the current purpose, a maximum approach is adopted to give the hypothesis the benefit of the doubt.

Since we are dealing with a premodern economy in China, some early classical approaches are adopted including those of David Hume, Francois Quesnay and Thomas Gresham. But the underlying theoretical framework is the rationale of classical and neo-classical economics.

1. How large was China’s silver stock (c. 1400–1886)?

Firstly, we put the $S = C$ model under scrutiny by establishing China’s export capacity to see if there is any likelihood that the country could purchase one-third of world silver. Secondly, we will check figures regarding China’s silver imports to see how much silver was really absorbed by China.

(1) How much silver was China able to buy?

Granted, as Antonio de Morga famously wrote in 1609, ‘the purchase price [of Chinese goods] is paid in silver and *reals*, for the Shangleys [*shangren* 商人] do not want gold, or any other articles, and will not take other things to China’.¹³ But the question is how much silver was China able to buy.

The information of how much China exported is extremely difficult to obtain. But we can work out how much China was capable of exporting. From a reputable estimate, the total value of goods for intra-regional trade was 398.3 million *liang* (兩) of silver a year in the 1830s.¹⁴ These goods can be divided into two categories: those that China exported and those it did not (see Table 1).

Table 1. China’s Annually Marketed Goods, the 1830s

	Value (million <i>liang</i>)	% in total
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¹³ Chuan Hang-Sheng, ‘Trade between China, the Philippines and the Americas during the Sixteenth and Seventeenth Centuries’, *Proceedings of the International Conference of Sinology: Selection on History and Archaeology*, Taipei: *Academia Sinica*, 1981, p. 851. Likewise, Schurz states ‘the Chinese were not buyers, but sellers, and they demanded silver in exchange for their goods’, see W. L. Schurz, *The Manila Galleon*, 1938, Manila: R. P. Garcia Publishing Co., reprint, 1985, p. 68.

¹⁴ Wu Chengming 吳承明, 《中國的現代化: 市場與社會》 (*China’s Modernization: Market and Society*), 北京: 三聯書店, 2001, pp. 148–9. Noted, one *liang* is commonly taken as 37.5 grams which I adopted as this stage as a benchmark, although in effect the weight of *liang* varied widely across the empire.

‘Most likely exports’, maximum	63.0 (2,362.5)	15.8
<i>Tea</i>	31.9 (1,196.3)	8.0
<i>Silk textiles</i>	14.6 (547.5)	3.7
<i>Raw silk</i>	12.0 (450.0)	3.0
<i>Porcelain</i>	4.5 (168.8)	1.1
‘Non-Exportable’ items	335.3 (12,573.8)	84.2
<i>Grain</i> ¹⁵	163.3 (6,123.8)	41.0
<i>Cotton cloth</i>	94.6 (3,547.5)	23.8
<i>Salt</i>	58.6 (2,197.5)	14.7
<i>Cotton fibre</i>	12.8 (480.0)	3.2
<i>Metals</i>	6.0 (225.0)	1.5
All marketed goods	398.3 (14,936.3)	100.0

Source: Based on Wu Chengming 吳承明, 《中國的現代化: 市場與社會》 (*China's Modernization: Market and Society*), 北京: 三聯書店, 2001, pp. 148–9.

Note: Figures in parentheses are in metric tons of silver.

Here, the maximum value of all the ‘exportable items’ is 63 million *liang* of silver, or 99.0 million pesos.¹⁶ If it was able to maintain this level year in and year out during the Acapulco-Manila Galleon Period of 250 years (1565–1815),¹⁷ China would have obtained 590,625 tons of the metal (24,764.2 million pesos).¹⁸

¹⁵ This is far more optimistic than the estimates of 30–40 million *shi* of un-husked rice for the same period (Wang, ‘Chinese Monetary System’, p. 434). Given that the period price was 2.0–2.4 *liang* of silver per *shi* for un-husked rice, the total value of the grain would be a maximum of 80 million *shi* (石, one Qing *shi* of grain weights 72.49kg; (Liang, *Dynastic Data*, p. 545; Kang Chao, *Man and Land in Chinese History: An Economic Analysis*, Stanford: Stanford University, 1986, p. 209; cf. Li, *Agricultural Development*, p. 210, fn 1). One *shi* produces about 50 kilograms of husked rice (白米) after husking. So, 80 million *shi* produces 4 million metric tons of un-husked rice, enough to feed 21.9 million adult males for a year at the subsistence level (500 grams of rice per diem). These 21.9 million people occupied 5.5 percent (based on China’s 398.9 million of 1833) of China’s total population (see K. G. Deng, “Unveiling China’s True Population Statistics for the Pre-Modern Era with Official Census Data”, *Population Review*, 43, 2, 2004, Appendix 2). According to William Skinner, China’s urbanisation rate was 5.1 percent for 1843 and 6.0 percent for 1893. Even in the most affluent Jiangnan region (江南), the rate was merely 7.4 percent for 1843 and 10.6 percent for 1893 (G. W. Skinner, *The City in Late Imperial China*, Stanford: Stanford University Press, 1977, pp. 228–9). So, the grain trade was just enough to maintain China’s urban population.

¹⁶ A Spanish-Mexican peso weights 26.5 grams with 88–90 percent silver content. Each peso contains pure silver of 23.85 grams maximum. One million pesos make 23.85 tons of pure silver. Counting the silver content which is what really matters, one *liang* equals 1.57 pesos.

¹⁷ 1571 has been recognised as the year when first recorded commercial shipment of silver from the West arrived in China, see D. O. Flynn and Arturo Giráldez, ‘Cycles of Silver: Global Economic Unity through the Mid-Eighteenth Century’, *Journal of World History*, 2, 2002, pp. 391–427. However, von Glahn sets the commencing date back as early as 1550, see von Glahn, *Fountain of Fortune*, p. 140.

¹⁸ The Spanish-controlled Acapulco-Manila sea link across the Pacific was the most direct route to ship New World silver to Asia. The second route, associated with *flotas de plata* (Treasure Fleet), was more complicated, as silver went from Panama across the Atlantic Ocean to Europe (Seville, Lisbon, Amsterdam

It is believed that the total silver output of the Spanish-Portuguese New World (i.e. Brazil, Mexico, Peru, Potosi and Chile) over the mid-sixteenth century to mid-nineteenth century varied between 90,000 and 150,000 tons.¹⁹ It is also believed that before 1800 New World silver contributed about 80–85 percent of to the world total.²⁰ So, the world total by 1800 would be 112,500–187,500 tons. China’s ‘exportable items’ were worth 3–5 times over that total. This is unrealistic.

In reality, China’s export was far less than 63 million *liang* before 1871, if we assume its trade balance suffered no deficit (see Table 2).²¹ China’s export value in the 1820s and 1830s was merely 9.8–9.9 million *liang* (367.5–371.3 tons) a year.²² This was just 15.6–15.7 percent of the total value of China’s ‘most likely’ exports.

Table 2. Total Value of China’s Foreign Trade (million *liang*), 1801–1891

	Customs duty revenue	Total value	Index
1801	–	15.3* (15.5)	100
1821	–	16.3* (16.6)	107

and London), and then continued towards Asia across the Indian Oceans (Goa) and the China Seas (Macao), involving multiple parties. According to Atwell, roughly 70 percent silver for Asia went through the Pacific route and 30 percent, the Atlantic-Indian Oceans route (Atwell, ‘Bullion Flows’, pp. 74–5).

¹⁹ There is no synchronised time period for silver output. The 90,000 tons is based on a total output of 300 tons per annum during the seventeenth century, see Artur Attman, *American Bullion in the European World Trade 1600–1800*, translated by Eva and Allan Green, Göteborg: Kungl, 1986, p. 78. Garner took a slice of the silver production period (200 years) and ended with a figure of 71,550 tons (derived from 3 billion pesos), see R. L. Garner, ‘Long-Term Silver Mining Trends in Spanish America: A Comparative Analysis of Peru and Mexico’, *The American Historical Review*, 93, 4, 1988, p. 900. But in real terms Garner’s total output is likely to be 107,325 tons for the entire 300 years. Barrett landed on 150,000 tons, see Ward Barrett, ‘World Bullion Flows, 1450–1800,’ in J. D. Tracey, ed., *The Rise of the Merchant Empires, Long-distance Trade in the Early Modern World, 1350–1750*, Cambridge: Cambridge University Press, 1990, p. 236). Based on archival records, the most reliable sum is undoubtedly Soetbeer’s 145,410 tons from Brazil, Mexico, Peru, Potosi and Chile. However, Soetbeer’s data are for a later period of 1521–1875, see A. G. Soetbeer, *Edelmetall-Produktion und Werthverhältniss zwischen Gold und Silber seit der Entdeckung Amerikas bis zur Gegenwart (Production of Precious Metals and Ratio of Relative Values of Gold and Silver from the Discovery of America to the Present Time)*, Gotha: J. Perthes, 1879, pp. 60, 70, 79, 82–3, 92 and Table 1. Nevertheless, Soetbeer’s data largely confirm Barrett’s estimates (150,000 tons).

²⁰ See Cross, H. E., ‘South American Bullion Production and Export, 1550–1750,’ in J. F. Richards, ed., *Precious Metals in the Late Medieval and Early Modern Worlds*, Durham [N.C.]: Carolina Academic Press, 1983, p. 397; Barrett, ‘World Bullion Flows’, p. 225.

²¹ This is to assume that China’s foreign trade deficit was small before the end of the nineteenth century, see Yan Zhongping 嚴中平, 《中國近代經濟史統計資料選輯》 (*Selected Statistical Materials of Economic History of Early Modern China*), 北京: 科學出版社, 1955, p. 64; also see Chen Ciyu 陳慈玉, ‘以中印英三角貿易為基軸探討十九世紀中國的對外貿易’ (Study of Nineteenth Century Sino-foreign Trade based on the Trade Triangle of China, India, and Britain), in 中國海洋發展史論文集編輯委員會, 《中國海洋發展史論文集》 (*Selected Essays on the Maritime History of China*), 卷 1, 臺北: 中央研究院, 1984, pp. 156–7.

²² Yan, *Statistical Materials*, pp. 3–5. During this period China’s export value to Britain was mere one million *liang* of silver (37.5 tons) per year. And, Britain was China’s single largest trading partner at the time, see Shen Guanyao 沈光耀, 《中國古代對外貿易史》 (*A History of Foreign Trade in Ancient China*), 廣州: 廣東人民出版社, 1985, p. 110.

1831	–	17.3* (17.5)	113
1841	–	30.0† (30.0)	194
1851	–	51.4† (51.4)	332
1861	4.3 [4.4]	86.9‡ (87.8)	566
1871	7.0 [7.0]	140.4‡ (141.0)	910
1881	11.1 [9.5]	222.3‡ (190.0)	1,226
1891	12.2 [9.2]	243.4‡ (181.6)	1,172

Source: Data for 1801–31, based on Yan Zhongping 嚴中平, 《中國近代經濟史統計資料選輯》 (*Selected Statistical Materials of Economic History of Early Modern China*), 北京: 科學出版社, 1955, p. 3; those for 1839, based on *ibid.*, pp. 3–5; H. B. Morse, *The Chronicles of the East India Company Trading to China, 1635–1834*, Oxford: Oxford University Press, 1926–29, vols 4–5 and Wu, *China's Modernization*, 286; those for 1861–91, based on Tang Xianglong 湯像龍, 《中國近代海關稅收和分配統計》 (*Data of Custom Duty and its Distribution of Modern China, 1861–1910*), 北京: 中華書局, 1992, pp. 63–6. The silver-gold exchange rates are based on Yu Yaohua 余耀華, 《中國物價史》 (*A History of Prices in China*), 北京: 中國物價出版社, 2000, p. 865 and Liu Foding and Wang Yuru 劉佛丁, 王玉茹, 《中國近代的市場發育與經濟增長》 (*Development of the Market and Economic Growth in Early Modern China*), 北京: 高等教育出版社, 1996, pp. 178–9.

Note: Figures in parentheses are in 1839 price. Indices and annual growth rates are calculated by the 1839 price. *Only the 1800's silver-gold exchange ratio is available and hence is applied as a proxy. †No datum available, estimates are made by linear growth between 1831 and 1861. ‡Conversion based on 5 percent duty rate.²³ Index in parentheses is for comparison.

By maintaining the volume worth 9.8–9.9 million *liang* a year constantly, China would have had accumulated 91,875–92,825 tons of foreign silver (3,852.2–3,892.0 million pesos) throughout the Acapulco-Manila Galleon Period. This is the equivalent of about 60 percent of the New World silver (150,000 tons), or 50 percent of the world total (using 187,500 tons). This is promising. However, it took a long time for China to export goods of 9.8–9.9 million *liang* worth a year. Therefore, China's silver intake must have been considerably less than what these hypothetical percentages suggest.

(2) How much silver ever came to China, c. 1400–1886?

(a) Silver obtained from the West, 1571–1886

The analysis of China's purchasing power only helps us to eliminate the myth that the world exported one-third of its silver to China, not how much was imported.

By consensus, the main source of silver supply to China was the West. One estimate has a lump sum of 200–300 million pesos (4,770–7,155 tons) as China's total importation

²³ Tang, *Custom Duty*, p. 14.

from the West by both the state and the private sectors (including smuggling) from 1571 to 1821.²⁴ The annual average importation of silver was 19.1–28.6 tons (0.8–1.2 million pesos). A similar estimate suggests 234.6 million pesos (5,595 metric tons) for the same period with an annual average of 22.4 tons.²⁵ These figures seem to be too conservative. Also, there is little indication of dynamism over time.

A more optimistic estimate is 1,140–1,330 million *yuan* (圓)/pesos (or 27,189–31,721 tons) for the period from 1571 to 1830,²⁶ or 105.0–122.5 tons a year. However, these amounts seem to be based on figures for much later periods of (1) China's silver stock of 1,320 million pesos (31,482.0 tons) in 1910,²⁷ and (2) China's silver stock of 2,200–3,300 million silver *yuan*/pesos (52,470–78,705 tons) in 1930.²⁸ China's huge stockpile of silver in the early twentieth century was largely due to the practice of the gold standard in Europe, US and Japan. China became an international dumping ground for cheap silver.²⁹ Consequently, China's own silver price collapsed by a massive 80 percent in 1933 compared to 1839.³⁰ So, measured by the 1839 constant price, China's silver stock 1,140–1,330 million *yuan*/pesos would be worth only 228–266 million pesos (or 5,437.8–6,344.1 tons). This is not too different from the conservative estimates.

More credible estimates are those made for four different phases: 1571–1644, 1650–1799, 1800–40 and 1841–86. They show not only quantities but also dynamics.

During Phase One (1571–1644, the late Ming),³¹ a total of 53–100 million pesos (1,264.0–2,385.0 tons) were imported by China,³² averaging 17.3–32.7 tons per year.³³

²⁴ Qian Jiang 錢江, '1570–1760 年中國和呂宋貿易的發展及貿易額的估算' (Estimation of the Growth and Trade Balance between China and Luzon, 1570–1760), 《中國社會經濟史研究》 (*Studies of Chinese Economic History*), 3, 1986, pp. 69–78; Zhang Yan 張研, 《清代經濟簡史》 (*A Short Economic History of the Qing Period*), 鄭州: 中州古籍出版社, 1998, p. 327.

²⁵ Wu, *China's Modernization*, pp. 33, 287.

²⁶ Yie-chien Wang, 'Secular Trends of Rice Prices in the Yangzi Delta, 1638–1935,' in T. G. Rawski and L. M. Li, eds., *Chinese History in Economic Perspective*, Berkeley: University of California Press, 1992, p. 57. Noted, China's silver *yuan* was a carbon copy of the peso; see Joe Cribb, *Money in the Bank, An Illustrated Introduction to the Money Collection of The Hongkong and Shanghai Banking Corporation*, London: Spink & Son Ltd, 1987, p. 125.

²⁷ Yen-P'ing Hao, *The Commercial Revolution in Nineteenth-Century China*, Berkeley: University of California Press, 1986, p. 66.

²⁸ T. G. Rawski, *Economic Growth in Prewar China*, Berkeley: University of California Press, 1989, pp. 363–5.

²⁹ Chen Nai-ruenn, "China's Balance of Payments: the Experience of Financing a Long-term Trade Deficit in the Twentieth Century," in Hou Chi-ming, ed., *Modern Chinese Economic History*, Taipei: The Institute of Economics, *Academia Sinica*, 1979, p. 396.

³⁰ Liu Foding and Wang Yuru 劉佛丁, 王玉茹, 《中國近代的市場發育與經濟增長》 (*Development of the Market and Economic Growth in Early Modern China*), 北京: 高等教育出版社, 1996, pp. 178–9.

³¹ Roughly, this was what von Glahn defined as China's 'silver century' of 1550–1650, see his *Fountain*, ch. 4.

³² The upper range agrees with von Glahn's estimate of 2,309 tons, see his *Fountain*, p. 140.

³³ According to Hamilton, Spain was able to shipped 322.2 tons of silver a year from the New World to Seville during the heydays of 1591–1600, see E. J. Hamilton, *American Treasure and the Price Revolution in Spain, 1501–1650*, Cambridge [Mass.]: Harvard University Press, 1934, pp. 1–42. So, China may have not been the first choice for the sale of New World silver.

The sources of silver were the New World and, less importantly, Japan. But silver dealers were overwhelmingly Westerners.³⁴

During Phase Two (1650–1799, the early and mid-Qing), a total of 178.3 million *liang* (6,686.3 tons) were added to China’s silver stock, at 44.9 tons per year.³⁵ By now, the pre-Opium war total is 7,950.3–9,071.3 tons.³⁶

Phase Three (1800–40 before the Opium War), coinciding with the ending of the Acapulco-Manila Galleon Trade, net outflow of silver occurred to pay for China’s opium imports.³⁷ It is worth noting that opium had a much greater value-added capacity than silver. Therefore, although the actual quantity of opium imported by China was small, the value was not trivial (see Table 3).³⁸

Table 3. Annual Opium Imports to China, Volume and Value, 1800–35

	Chests*	Weight (斤 <i>jin</i>)	Value (pesos)	Pesos [<i>liang</i>]/ <i>jin</i>
1800–5	3,562	401,960	2,009,800† (47.9)	5.0 [3.2]
1805–10	4,281	484,580	–	–
1810–5	4,713	534,980	–	–
1815–20	4,633	519,740	–	–
1820–5	6,774	729,320	33,502,440 (799.0)	45.9 [29.4] ³⁹

³⁴ Liang Fangzhong 梁方仲, 《梁方仲經濟史論文集》 (*Collected Works by Liang Fangzhong in Economic History*), 北京: 中華書局, 1989, pp. 178–9.

³⁵ See Wu, *China’s Modernization*, pp. 278–85. But von Glahn’s estimate is as low as 28.7 tons a year for the second half of the seventeenth century (his *Fountain*, pp. 232, 240). This coincided with 1.5 percent peso debasement in 1728 under Philip V. Here, the higher figure is used in favour of China’s import capacity.

³⁶ This roughly agrees with two other estimates: (1) Gilbert’s figure of 11,190 tons (100 million pounds sterling) (Rodney Gilbert, *The Unequal Treaties, China and the Foreigner*, London: John Murray, 1929, p. 52) and (2) Wang’s estimate of 11,925 tons (500 million pesos) (Yeh-chien Wang, ‘Evolution of the Chinese Monetary System, 1644–1850,’ in Hou Chi-ming, ed., *Modern Chinese Economic History*, Taipei: The Institute of Economics, *Academia Sinica*, 1979, p. 449, endnote 22).

³⁷ In 1729, the Portuguese shipped the first recorded 200 chests of opium to Macao, ushering in the age of opium trade in China, see John Phipps, *A Practical Treatise on the China and Eastern Trade*, Calcutta: Baptist Mission Press, 1835, p. 208. The first British opium cargo arrived half a century later in 1773, see E. H. Pritchard, *Anglo-Chinese Relations during the Seventeenth and Eighteenth Centuries*, Urbana: The University of Illinois Press, 1929, p. 150.

³⁸ By 1800, some 70 years after the first commercial shipment of opium, the total importation of opium to China was merely 2,000–3,000 chests per year (Pritchard, *Anglo-Chinese Relations*, p. 160). Only during the mid-1820s did the importation of opium take off. Even so, opium never exceeded half of the total value of China’s imports from 1860 to 1910, see Wu Shenyuan and Tong Li 吳申元, 童麗, 《中國近代經濟史》 (*An Economic History of Early Modern China*), 上海: 上海人民出版社, 2003, p. 296; cf. Yan, *Selected Statistical Materials*, pp. 72–3. From the data for trade in Macao during the 1880s, a considerable amount of opium was re-exported to Australia and San Francisco, see Deng Kaisong 鄧開頌, ‘明清時期澳門海上貿易’ (Sea Trade in Macao during the Ming-Qing Era), in Liu Xufeng 劉序楓 (主編), 《中國海洋發展史論文集》 (*Selected Essays on the Maritime History of China*), 卷 9, 臺北: 中央研究院, 2005, p. 129.

³⁹ One Qing *jin* was made of 16 *liang*. So, the average opium price per *jin* was higher than silver in weight. High-quality opium cost up to four times its weight in silver, see Qi Sihe 齊思和, 《鴉片戰爭》 (*The Opium War*), 卷 1, 上海: 上海人民出版社, 2000, p. 537).

1825–30	12,108	1,312,440	56,930,593 (1,357.8)	43.4 [27.8]
1830–5	20,546 ⁴⁰	2,217,260	63,866,684 (1,523.3)	28.8 [18.5]
1836–7	21,505	2,312,000	14,454,193 (344.7)	6.3 [4.0]
1838	50,000	6,000,000	15,000,000‡ (357.8)	2.5 [1.6]

Source: Morse, *Chronicles*, vols 3–5; Timothy Brook and Bob T. Wakabayashi, eds., *Opium Regimes: China, Britain, and Japan, 1839–1952*, Berkeley: University of California Press, 2000, p. 204 (for the 1838 figure); cf. Yen-P'ing Hao, *The Commercial Revolution in Nineteenth-Century China*, Berkeley: University of California Press, 1986, p. 117; Gong Yingyan 龔纓晏, 《鴉片的傳播與對華鴉片貿易》 (*Spread of Opium Consumption and Opium Imports by China*), 北京: 東方出版社, 1999, pp. 284–90, 292.

Note: Figures in parentheses are in metric tons. All the figures may double if smuggling is included.⁴¹ Figures in brackets are in *liang*. Chest-weight conversion is based on Gong 1999: 281, 284–90, 292. *A chest contained 40 opium balls (the same size as a cannon ball, 15 cm in diameter, 3 *jin* each) of 100–120 *jin* (133.3–140 lb) in total.⁴² †Maximum price based on 2,000 chests for 1,200,000 pesos.⁴³ ‡Based on Article IV of The Treaty of Nanking regarding six million silver dollars for the seized 20,000 chests of opium (1839 price).

Although paying out silver for opium,⁴⁴ China still imported silver even from the British East India Company (EIC). The following data are silver shipments earmarked to Canton by EIC:⁴⁵

1800–4	3,487,775 ozs	108,469.8 kg
1805–9	735,968	22,888.6
1810–4	374,604	11,650.2
1815–9	5,047,569	156,979.4
Total		299,988.0

⁴⁰ Chinese sources often put a figure of 25,000 to 35,500 chests a year for the late 1830s due to the factor of smuggling, e.g. ZS (Zhongguo Shixuehui 中國史學會) (編), 《鴉片戰爭》 (*The Opium War*), 第2冊, 上海: 神州國光社, 1954, p. 543; Kuang Haolin 況浩林, 《簡明中國近代經濟史》 (*A Brief Economic History of Early Modern China*), 北京: 中央民族大學出版社, 1989, p. 38). Morse's data here are taken as the minimum.

⁴¹ This is based on a comparison between Morse and Wu. The former has China's annual purchase of opium in the 1830s as worth 22.2 million *liang* (832.5 tons) a year on the book (Morse, *Chronicles*, vols 4–5), while the latter has an estimate of 43.4 million *liang* (1,627.5 tons) including smuggling (Wu, *China's Modernization*, 286).

⁴² Martin Booth, *Opium: A History*, New York: St. Martin's Press, 1996, ch. 1.

⁴³ E. H. Pritchard, *Anglo-Chinese Relations during the Seventeenth and Eighteenth Centuries*, Urbana: The University of Illinois Press, 1929, p. 160.

⁴⁴ Chen, 'Sino-foreign Trade', pp. 144–5; Xie Hangsheng 謝杭生, '鴉片戰爭前銀錢比價的波動極其原因' (Fluctuations in Silver-Cash Ratio and their Causes prior to the Opium War), 《中國經濟史研究》 (*Studies of Chinese Economic History*), 2, 1993, pp. 110–1.

⁴⁵ Data extracted from East India Company's cargo records of the British Library, 'Oriental and India Office Collection, Commerce Journal', L/AG/1/6, vols 14–28. I thank to Dr. Huw V. Bowen of the University of Leicester for sharing the information so generally with me.

Annual average

15,788.8

In one account, China's net re-export of silver amounted for 29.1 million *liang* (1,091.3 tons) for 1800–30, averaging 36.4 tons a year.⁴⁶ In another, the re-export was 150.0 million pesos (3,577.5 tons) from 1814 to 1850, on average 99.4 tons a year.⁴⁷ The highest estimate is 134 million pesos (3,195.9 tons) for 1827–49, averaging 145.3 tons a year.⁴⁸ If we take the first figure (1,091.3 tons) for 1800–30, avoid the second figure due to overlap and use 145.3 tons as the annual level of silver re-export for 1831–50 (hence 2,760.7 tons of silver), China's re-export of silver in 1800–50 would be 3,852.0 tons to pay for the new found pleasure.⁴⁹

During Phase Four (1841–86 of the post-Opium War Qing),⁵⁰ a total of 481.2–734.2 million pesos (11,476.6–17,510.7 tons) was imported by China,⁵¹ or 255.0–389.1 tons per year.⁵²

The overall pattern is compatible with China's long-term price structure for silver, measured by the silver-to-gold exchange rate. During the period from *c.* 1500 to *c.* 1750 (our first two phases), silver was more expensive in China than in Europe by as much as 100 percent. China was able to afford only small quantities of silver a year. Meanwhile, a high silver price in China encouraged the silver-rich economies to spend their hard currency on Chinese goods. The trade continued until the inflow of silver lowered China's domestic silver price. Then, the same amount of exports enabled China to buy in more silver (see Figure 1). Once China accumulated enough silver, it began to purchase foreign goods (opium for example). Silver flew out of the country, as articulated in David Hume's 'price-specie flow theory'.⁵³

⁴⁶ Wu, *China's Modernization*, pp. 33, 287.

⁴⁷ Lin Manhong 林滿紅, '中國的白銀外流與世界金銀減產 1814–1850' (China's Silver Outflow and Decline in Gold and Silver Outputs in the World, 1814–1850), in Wu Jianxiong 吳劍雄 (主編), 《中國海洋發展史論文集》 (*Selected Essays on the Maritime History of China*), 卷 4, 臺北: 中央研究院, 1991, p. 3.

⁴⁸ Wang, 'Monetary System', p. 442.

⁴⁹ The estimated opium addicts in China's total population varies widely from mere one percent to 50–70 percent, see Gong Yingyan 龔纓晏, 《鴉片的傳播與對華鴉片貿易》 (*Spread of Opium Consumption and Opium Imports by China*), 北京: 東方出版社, 1999, pp. 293–4; Timothy Brook and B. T. Wakabayashi, eds., *Opium Regimes: China, Britain, and Japan, 1839–1952*, Berkeley: University of California Press, 2000, pp. 9, 194, 214. Opium was most widely used by the upper class, as 80–90 percent of all officials took the substance (*ibid.*, p. 294).

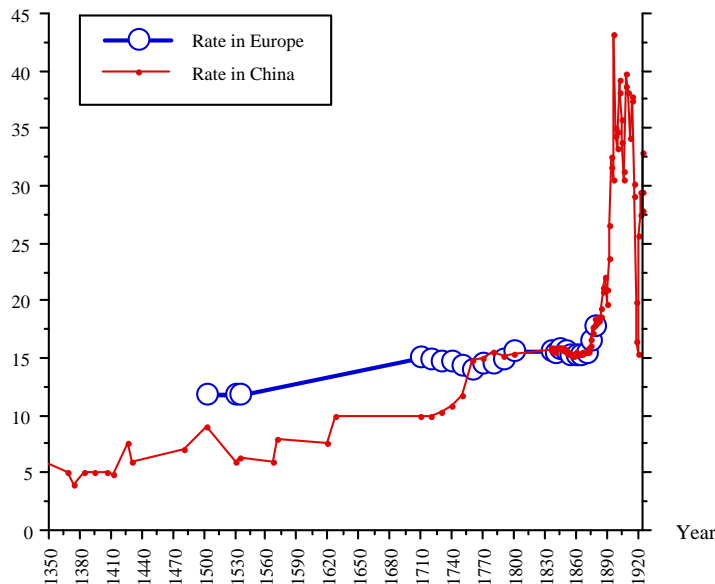
⁵⁰ During this period, the Qing state monopoly over foreign trade ended.

⁵¹ This is a rough proxy, derived from the total of 17,816–23,850 tons of silver (747–1,000 million Mexican pesos) for the period of 1721–1886 (Lin, 'Silver Outflow', p. 11) with the deduction of 6,340 tons for 1700–1840 (Zhuang Guotu 庄國土, '茶葉, 白銀和鴉片: 1750–1849年中西貿易結構' [Tea for Silver and Opium: Patterns of Sino-Western Trade, 1750–1840], 《中國社會經濟史研究》 [*Studies of Chinese Economic History*], 3, 1995, p. 71).

⁵² The afore-mentioned 9.8–9.9 million-*liang*-a-year export (or 367.5–371.3 tons, 15.4–15.6 million pesos) should be taken as one of the peaks of China's foreign trade performance.

⁵³ David Hume's dynamics begin with a windfall of hard currency (silver or gold) in Country X, which enlarges the aggregate demand of the country and pushes up the domestic prices to make foreign imports attractive. Country X begins to import goods from Country Y. After a while, with Country X's currency drain its aggregate demand falls. Country Y, now rich in hard currency, has an enlarged aggregate demand and high domestic prices. It buys cheap goods from X. The circle begins all over again.

Figure 1. The Silver-Gold Exchange Rate, China and Europe Compared



Source: China, based on Yu, *Prices*, pp. 754–5, 865 and Liu and Wang, *Market*, pp. 178–9; cf. Richard von Glahn, *Fountain of Fortune, Money and Monetary Policy in China, 1000–1700*, Berkeley: University of California Press, 1996, p. 61. Europe, based on A. G. Soetbeer, *Edelmetall-Produktion und Werthverhältniss zwischen Gold und Silber seit der Entdeckung Americas bis zur Gegenwart (Production of Precious Metals and Ratio of Relative Values of Gold and Silver from the Discovery of America to the Present Time)*, Gotha: J. Perthes, 187, pp. 129–31 and von Glahn, *Fountain*, p. 128. Also, *Austria Finanzministerium (Austrian Ministry of Finance), Tabellen zur Währungs-Statistik, Hefte 1–5 (Tables regarding Currency Statistics, Volumes 1–5)*, 3rd ed., Wien (Vienna): Austria Finanzministerium, 1903–5.

Altogether, China imported 19,427.0–26,582.0 tons of silver minus 3,852.0 tons of re-export. The net import was likely to be in the region of 15,575–22,730 tons (equivalent to 653.0–953.0 million pesos).

(b) Indigenous silver gained within Asia, 1550–1700

However, these 15,575–22,730 tons did not represent the entire silver stock in China. China also imported a gross total of 9,722–9,902 tons of silver from Tokugawa Japan in 1550–1700, including (1) 3,622–3,802 tons (gross) during 1550–1645, averaging 38.1–

40.0 tons per year,⁵⁴ and (2) 6,100 tons (gross) during 1650–1700, averaging 122.0 tons per year.⁵⁵ Japan's supply of silver petered off after 1700 due to Japan's voluntary restrictive trade policy and severe debasement of Japanese silver currency.⁵⁶

It is known that Japanese silver produce had a low purity at 70–80 percent of silver content, averaging 75 percent.⁵⁷ The net total of Japanese silver had to be 7,291.5–7,426.5 tons after a 25 percent discount.⁵⁸ Shares between Western silver and Japanese silver to China were 2.1–3.1:1. Japan was a significant player.

A boom in Japan's silver industry owed much to the adoption of the 'cupellation method' from Korea (吹灰法 *haikuki*) in the 1530s–40s. Japan had another advantage: all its silver mines were located along Japan's north-western coast (in Iwami, Sado and Innai) close to the East Asian Mainland. Transport costs were kept to a minimum. Japanese silver had to be cheaper than silver from the New World despite the fact that (1) Japan's silver price was not synchronised with that of Europe until 1620 and (2) the price of silver was sometimes 40 percent more expensive in Japan than in Europe.⁵⁹ But how the amount of Japanese silver was shipped to China has remained unclear. It is commonly

⁵⁴ Von Glahn, *Fountain*, p. 140. This is similar to Kamiki and Yamamura's estimates of 33.8–48.8 tons a year (see Atwell, 'Bullion Flows', p. 71). Moloughney and Xia went as far as believing that in the first half of the seventeenth century, Japan's silver to China was three to four times of that of Manila to China during the best years of the galleon trade and hence saved China from a monetary crisis after the decline of Spanish silver in the seventeenth century (Brian Moloughney and Xia Weizhong, 'Silver and the Fall of the Ming: A Reassessment', *Papers on Far Eastern History*, 40, 1989, pp. 65, 68), although the notion of such a decline is subject to debate (K. N. Chaudhuri, 'World Silver Flows and Monetary Factors as a Force of International Economic Integration, 1658–1758,' in Wolfram Fisher, R. M. McInnis and Jürgen Schneider, eds., *The Emergence of a World Economy, 1500–1914*, Wiesbaden: In Kommission bei F. Steiner, 1986, pp. 67–8).

⁵⁵ Quan Hansheng 全漢昇, '略論新航路發現後的中國海外貿易' (On China's Overseas Trade after the Discovery of a New Asia-Europe Sea Route), in Zhang Bincun and Liu Shiji 張彬村, 劉石吉 (主編) 《中國海洋發展史論文集》 (*Selected Essays on the Maritime History of China*), 卷 5, 臺北: 中央研究院, 1993, p. 8; Anthony Reid, *Southeast Asia in the Age of Commerce, 1450–1680*, New Haven and London: Yale University Press, 1993, p. 27. Japanese scholars came up with 118.1 tons as Japan's total annual silver export during 1560–1640 (Flynn *et al.*, *Global Connections*, p. 174), and 150–200 tons during the early seventeenth century (R. L. Innes, 'The Door Ajar: Japan's Foreign Trade in the Seventeenth Century,' PhD Dissertation, University of Michigan, 1980, p. 376). In light of the Tokugawa export control, the maximum silver heading for China would be two-thirds of the total, hence 78.7–133.3 tons a year, very close to the 122.0 tons-a-year level. Noted, one estimate for China's intake of the Japanese silver is only 48.9 million *liang* (1,833.8 tons) for this period, see Zheng Yongcheng 鄭永昌, 《明末清初的銀貴錢賤現象與相關政治經濟思想》 (*Expensive Silver versus Cheap Bronze Coins and the Related Political and Economic Views in Late Ming and Early Qing*), 臺北: 國立師範大學歷史學研究所專刊 (24 期), 1994, p. 83. So, the debate goes on.

⁵⁶ Kazui Tashiro, "Exports of Japan's Silver to China via Korea and Changes in the Tokugawa Monetary System during the Seventeenth and Eighteenth Centuries," in E. H. G. van Cauwenberghe, ed., *Precious Metals, Coinage and the Changes of Monetary Structure in Latin America, Europe and Asia*, Leuven: Leuven University Press, 1989, p. 108.

⁵⁷ See von Glahn, *Fountain*, p. 137; Kuroda, Akinobu, "Copper Coins Chosen and Silver Differentiated: Another Aspect of the 'Silver Century' in East Asia", *Acta Asiatica* (Tokyo), 88, 2005, p. 83. But Tashiro's believes that the purity was only 64 percent (Tashiro, "Japan's Silver", p. 103). Our current discount rate of 75 percent is not too harsh.

⁵⁸ Noted, there is a danger of double accounting, the maximum approach adopted by this study tolerates it.

⁵⁹ Atwell, 'Bullion Flows', p. 82.

believed that it was done with the help of the Portuguese arbitragers.⁶⁰ However, the estimated Japanese silver exported to China by the Portuguese was merely 1,655 tons. The Chinese and Japanese were responsible for another 1,850 tons. The Dutch may have supplied a maximum of 400 tons.⁶¹ These numbers do not add up. Nevertheless, we give the benefit of the doubt regarding the Japanese silver supply.

With the imports from Japan, China's intake of foreign silver reached 22,866.5–30,156.5 tons which matches the silver shipped in the Acapulco-Manila Galleon Trade: (1) Spanish galleons carried between 50 and 159 tons of silver a year to Manila, averaging 104.5 tons. This would make a total of 26,125 tons for the 250-year long Acapulco-Manila Galleon Trade history.⁶² (2) On another account, each year 2–3 galleons sailed to Asia.⁶³ In all 500–750 galleons travelled to Asia from 1565 to 1815. Given that from 1598 to 1723 the annual average silver cargo was 2,695,000 pesos,⁶⁴ these 500–750 galleons would ship to Manila a total of 32,137.9–48,208.0 tons (1,347.5–2,021.3 million pesos).

Even so, this is the equivalent of only 15.2–20.1 percent of the total output of the New World (be it 150,000 tons). So, the notion that China imported one-third of New World silver is unsubstantiated. It makes more sense to suggest that China and India may have jointly taken one-third of New World silver.

Alternatively we can take the Mexican silver output at 76,205 tons during 1521–1875 as the benchmark. Chinese imports from the West (15,575–22,730 tons) were the equivalent of only a quarter of Mexican silver output (19,051.3 tons). The point is that the Mexican silver output represented only half of New-World silver. We can now end the confusion concerning what percentage of silver from where China received. If China received only a quarter of Mexican silver, its role in the world economy is severely demoted.

(c) China's home produced silver, 1411–1511

Moreover, six decades prior to the first silver shipment from Manila, China already had its own silver mining and refinery operation in full swing. Compared with 1411, China's domestic silver output declined by 92 percent in 1511 from 2.9 million *liang* to 0.3 million *liang*.⁶⁵ But by then, China's domestic production yielded a total of 100 million *liang* (3,750 tons).⁶⁶ At the end of the Ming, the ratio between the domestically produced silver and imported silver was actually in favour of the home team at 1.6–3.0:1 (i.e. 3,750 tons versus 1,264–2,385 tons). The native silver clearly dominated the supply.

⁶⁰ Von Glahn, *Fountain*, pp. 136–41; Tashiro, "Japan's Silver", p. 93; Li Shaoqiang and Xu Jianqing 李紹強, 徐建青, 《中國手工業經濟通史》 (*A General History of Chinese Handicrafts Industry, Ming-Qing*), 福州: 福建人民出版社, 2004, p. 119.

⁶¹ Moloughney and Xia, 'Fall of the Ming', pp. 59–61.

⁶² See Attman, *American Bullion*, pp. 12, 103; Cross, 'American Bullion', p. 420.

⁶³ See Chuan, 'Trade', p. 849.

⁶⁴ *Ibid.*, p. 851.

⁶⁵ See Quan Hansheng 全漢昇, '明代的銀課與銀產額' (Duties on Silver Mining and Silver Outputs under the Ming), 《新亞書院學術月刊》 (*Research Bulletin of the New Asia Academy*), 9, 1966, pp. 246–54.

⁶⁶ Li and Xu, *Handicrafts Industry*, p. 118; also von Glahn, *Fountain*, pp. 113–5. Noted, Liang Fengzhong's figure was only 30 million *liang*, see Huang, *Taxation*, Chinese edition, p. 92.

(d) China's total gross silver stock, 1411–1886

Adding on the extra 3,750 tons of silver produced locally, China's new total silver stock is 26,616.5–33,906.5 tons (equivalent to 1,116.0–1,421.7 million pesos).⁶⁷ We can make the following observations: (1) China's own silver industry provided the economy with a kick start with a large quantity of the metal, decades before foreign silver ever became available.⁶⁸ Undoubtedly, the original push for silverisation came from within. (2) Of the 22,866.5–30,156.5 tons of imported silver, the Qing period took the lion's share of at least 18,885.9–24,920.0 tons, or 82.6 percent of China's total. So, the silver trade and silverisation was a Qing phenomenon. (3) The West was responsible for 68.1–75.4 percent of China's total silver stock. The rest came from Asia. The silver story was not as a global as one might think.

(3) How much silver ever stayed in China, c. 1400–1886?

So far the amount of silver accumulated by China is a gross total without any deduction apart from re-exportation for opium.

For any metal currency, there is a loss due to friction. The irony is that the higher the degree of commercialisation and silverisation, the higher the velocity of currency circulation⁶⁹, and the higher the velocity of silver circulation, the greater the loss. If the loss rate was one percent a year, China's silver stock would suffer a deduction of 228.7–301.6 tons if all silver were circulated. The afore-mentioned 255.0–389.1 tons of silver as China's annual import for 1841–1886 might have been enough to cover the loss to metal friction.

China's true silver haemorrhage was caused by war reparations. In comparison, the afore-mentioned opium-induced silver drain was indeed peanuts. The Opium War established the precedent.⁷⁰ Between 1843 and 1900, China's war reparation premiums totalled 713 million *liang*, or 26,737.5 tons.⁷¹ This is equal to its entire silver stock. The Qing had to raise foreign loans to cover the reparations with an annual rate of interest of 4–5 percent. These interests alone totalled at least 28.6 million *liang* a year (1,072.5 tons).

Additionally, there were mounting foreign debts for general purposes whose annual interests amounted 128.8 tons (see Table 4). Given that the total foreign debt was about one-year's revenue from the Land-Poll Tax and that it had to be repaid, the silver in the debt form is not counted as part of China's silver stock.

⁶⁷ The estimate of 28,000 tons of silver for China seems to be too low, see Flynn *et al.*, *Global Connections*, p. 173.

⁶⁸ Although he omits quantitative evidence, von Glahn has the insight that in China the domestic silver economy was a precondition of the influx of foreign silver (*Fountain*, p. 257).

⁶⁹ Velocity means the number of times per year that money changes hands.

⁷⁰ The Treaty of Nanking, formally ratified at Hong Kong on 26th June 1843, stated that peace was made by British withdrawal of forces from five strategic locations: Nanjing (江寧), the Grand Canal, Zhenhai (鎮海), Gulangyu (鼓浪嶼) and Zhoushan (舟山) (Articles I and XII). One of the conditions was that China should pay a total of 18 million 'silver dollars' (meaning 'pesos') as reparation (Articles IV and VI), an equivalent of 429.3 tons.

⁷¹ Zhao Dexin 趙德馨, 《中國經濟史辭典》 (*Dictionary of Chinese Economic History*), 長沙: 湖北辭書出版社, 1990, pp. 874–80; Tang Xianglong 湯像龍, 《中國近代海關稅收和分配統計》 (*Data of Custom Duty and its Distribution of Modern China, 1861–1910*), 北京: 中華書局, 1992, p. 33.

Table 4. China's Foreign Debts, 1861–87

Purpose	Silver <i>liang</i>	Debtor bank	Interest (interest rate)
1. Internal law and order			
1861–6 Counter-Taipings	1,609,925	–	–
1867 Counter-Muslims	2,200,000	–	396,000 (18.0%)
1875–7 Counter-Muslims	9,750,000	British	1,462,500 (15.0%)
2. National security			
1874 Taiwan defence	2,000,000	British	160,000 (8.0%)
1883–5 Coastal defence	13,602,300	British	1,224,207 (9.0%)
1886 Naval upgrading	980,000	German	53,900 (5.5%)
3. Public works			
1887 Flood control	1,968,800	British	137,816 (7.0%)
Total debts	32,111,025*		
Total interests			3,434,423
In metric tons	1,204.2		128.8

Source: Based on Tang, *Custom Duty*, pp. 34–41.

Note: *Equivalent to one year's Qing state revenue before the Opium War.

So far, the compounded annual deduction of silver was 4.3–5.5 percent of the original stock. With this rate of discount, China's original silver stock would erode by at least 48.0 percent in just 10 years' time.

	Tons of silver
Metal friction	255.0
Interests on war reparations	1,072.5
Interest on foreign debts	128.8
Total	1,456.3
% of total stock (26,616.5–33,906.5 tons)	4.3–5.5

It is reasonable to assume that all the reoccurring deductions of the pre-1890 period were the equivalent of 30 percent deduction on the silver stock. This is very generous estimate, as the capital re-payment of all China's various debts is exempted. The resulting figure for the silver stock is 18,631.6–23,734.6 tons.

Secondly, there were many one-off deductions. According to the Qing law, only high purity silver was to be accepted by the taxman. The use of low quality silver to pay taxes

was subject to a fine of ten times in value.⁷² The term ‘low quality silver’ (番銀) was explicitly associated with coins of Japanese and Western origins (including European, Mexican, US) whose purity was regarded as inferior.⁷³ This created the need for silver smelting and refinery foreign coins to ingots (紋銀銀錠 or 紋銀元寶, 5 or 10 *liang* each in a shape of boat), also known as *sycee* (成色銀 literally meaning ‘purity’, 98 percent silver content).⁷⁴ The process normally caused about 2 percent loss in weight (called 火耗 *huohao*, meaning ‘loss in smelting and refinery’).

Suppose that all the imported silver of 22,866.5–30,156.5 tons was subject to smelting and refinery once in its lifecycle, with the loss rate of 2 percent, China’s silver stock would suffer a deduction of 457.3–603.1 tons. To play it safe, we assume that only one-third of silver went through smelting and refinery over time (hence a loss of 152.4–201.0 tons). Chinese silver ingots were sometimes cut up for payments as confirmed by contemporary travellers.⁷⁵ They might have had to be recast. So, the loss rate could recur.

China also had chronic foreign trade deficits. From 1865 to 1889, China had a total of 6,585.1 tons of silver paid out to settle those deficits (see Table 5). The figures do not include smuggling.

Table 5. China’s Foreign Trade Performance (Million *Liang*), 1865–89

Year	Export value	Import value	Balance
1865–9	278.8	310.8	–32 (–1200.0)
1870–4	333.7	332.1	1.6 (60.0)
1875–9	356.7	364.3	–7.6 (–285.0)
1880–4	354.0	395.3	–41.3 (–1,548.8)
1885–9	417.4	513.7	–96.3 (–3,611.3)
Total			–175.6 (–6,585.1)

Source: Liu Foding, Wang Yuru and Zhao Jin 劉佛丁, 王玉茹, 趙津, 《中國近代經濟發展史》 (*A History of Economic Development in Early Modern China*), 北京: 高等教育出版社, 1999, pp. 91–3.⁷⁶

⁷² Zhao Erxun 趙爾巽, 《清史稿》 (*Draft of the History of the Qing Dynasty*), 1927, 北京: 中華書局, reprint, 1977, vol. 121, p. 470.

⁷³ The Western coins had 88.0–90.3 percent silver content, while the Tokugawa bullion (*chogin* 丁銀) contained only 70–80 percent of silver (von Glahn, *Fountain*, p. 137; Kuroda, ‘Copper Coins’, p. 83).

⁷⁴ The fineness of the *sycee* was comparable with the Mughal silver rupee of 98.5 percent purity (Chaudhuri, ‘Silver Flows’, p. 73). The use of *liang* for silver continued until a reform in the 1930s to switch to *yuan* (廢兩改圓).

⁷⁵ Gabriel de Magalhães, *A New History of China, Containing a Description of the Most Considerable Particulars of that Vast Empire*, London: Thomas Newborough, 1688, p. 137.

⁷⁶ Nai-ruenn Chen’s data have much lower figures, which is almost certainly a result of under-estimation, see Chen Nai-ruenn, ‘China’s Balance of Payments: the Experience of Financing a Long-term Trade Deficit in the Twentieth Century,’ in Hou Chi-ming, ed., *Modern Chinese Economic History*, Taipei: The Institute of Economics, *Academia Sinica*, 1979, pp. 389–418.

Note: Figures within the parentheses are in metric tons.

China's one-off deductions are in the following breakdown:

	Tons of silver
Smelting and refinery of coins	152.4
Trade deficits after 1860	6,585.1
Total	6,737.5
% total stock (26,616.5–33,906.5 tons)	19.9–25.3

Given that our estimation is conservative, the real loss was likely to be greater the percentages suggested so far. This must have been one of the reasons for the widely reported silver shortage during the late Qing.⁷⁷

After these deductions the silver stock would shrink to 16,990 tons maximum (453.1 million *liang*), 44.7–50.1 percent of the original 26,616.5–33,906.5 tons.⁷⁸

2. How did silver function in the economy?

(1) Was there enough silver around?

The first question is whether China had the degree of commercialisation to take advantage of its silver stock.

If evenly distributed, the 16,990 tons of silver would make only 45.0 grams (1.2 *liang*) per head of China's population (377.6 million in 1887).⁷⁹ However, if the economy was autarkical, a small amount per capita might not be a problem. Thus, we have to know how commercialised China was seen from its GDP structure.

GDP accounting is always elusive in Chinese economic history. So far there are three accounts for the 1880s by Chung-li Chang, Albert Feuerwerker, and the Nankai Group.⁸⁰ The current study takes the average value amongst the three to show an overall magnitude and structure (see Table 6).

Table 6. China's GDP and Its Structure in the 1880s

	Chang	Feuerwerker	Nankai	Average
Total GDP	100%	100%	100%	100%
In million <i>liang</i>	2,781.3	3,338.8	3,508.5	3,209.5

⁷⁷ E.g. Wang, 'Chinese Monetary System'; Lin, 'Silver Outflow'.

⁷⁸ Peng Weixin's estimate was only 250 million *liang* as China's aggregate silver stock, see Peng Xinwei 彭信威, 《中國貨幣史》 (*A Monetary History of China*), 上海: 群聯出版社, 1954, pp. 461, 471.

⁷⁹ See K. G. Deng, "Unveiling China's True Population Statistics for the Pre-Modern Era with Official Census Data", *Population Review*, 43, 2, 2004, Appendix 2.

⁸⁰ Chung-li Chang, *The Income of the Chinese Gentry*, Seattle: University of Washington Press, 1962, p. 296; Albert Feuerwerker, *The Chinese Economy, 1870–1949*, Ann Arbor: Center for Chinese Studies of the University of Michigan, 1995, p. 16; Liu Foding, Wang Yuru and Zhao Jin 劉佛丁, 王玉茹, 趙津, 《中國近代經濟發展史》 (*A History of Economic Development in Early Modern China*), 北京: 高等教育出版社, 1999, p. 66.

In metric tons	104,298.8	125,205.0	131,568.8	120,356.3
Per capita GDP* (<i>liang</i>)				8.5
Silver stock (16,990 tons) vs. total GDP (%)				14.1
Non-agricultural GDP†	39.9%	33.2%	30.4%	34.5%
In million <i>liang</i>				1,107.3
In metric tons				41,523.8
Per capita non-agriculture GDP (<i>liang</i>)*				2.9
Silver stock (16,990 tons) vs. Non-agricultural GDP (%)				40.9
Agricultural GDP	60.1%	66.8%	69.6%	65.5%

Source: Based on information from Chung-li Chang, *The Income of the Chinese Gentry*, Seattle: University of Washington Press, 1962, p. 296; Albert Feuerwerker, *The Chinese Economy, 1870–1949*, Ann Arbor: Center for Chinese Studies of the University of Michigan, 1995, pp. 297–325, p. 16; Liu *et al.*, *Economic Development*, p. 66.

Note: *Based on 377.6 million in 1887.⁸¹ †Both urban and rural (i.e. off-seasonal, non-farming output).

If we assume in Francois Quesnay's fashion that in a premodern economy all the agricultural surpluses (as final products) were exchanged with all the goods and services (also as final products) from the non-agricultural sector,⁸² and that the GDP from the non-agricultural sector thus presented half of the total commercial GDP of the economy (PT, meaning the total price of goods and services traded), we can come up with the following estimation:

Commercial GDP in % of China's total†	34.5% x 2 ⁸³
In million <i>liang</i>	1,107.3 x 2
In metric tons	41,523.8 x 2
Per capita commercial GDP (<i>liang</i>)*	2.9 x 2
Silver stock vs. GDP (%)	40.9 / 2

China's per capita commercial GDP was 5.8 *liang*, indicating limited commercialisation. The ratio between the per capita commercial GDP and the per capita

⁸¹ Deng, 'Population Statistics', Appendix 2.

⁸² Francois Quesnay (1694–1774), the French Physiocrat, published *Tableau économique (Economic Table)* in 1758 to elaborate the interdependence between all sectors in an economy (see R. L. Meek, *The Economics of Physiocracy: Essays and Translations*, London: Allen and Unwin, 1962), borrowing his idea from Qing China (L. A. Maverick, *China, a Model for Europe*, San Antonio [Tex.]: Paul Anderson, 1946).

⁸³ This is very generous, as studies of Ming-Qing commercial activities have suggested that commercial outputs hardly exceeded 50 percent of China's total GDP, see K. G. Deng, 'Development and Its Deadlock in Imperial China, 221 B.C.–1840 A.D.', *Economic Development and Cultural Change*, 51, 2, 2003, pp. 480–1.

silver stock (1.2 *liang*) is therefore 4.8:1. If the velocity of silver was three times a year in our case,⁸⁴ the economy should have had no problem with liquidity solely on silver.

However, if the silver was used to store value, the situation would be very different. Again, to use the 34.5 percent of China's total GDP as a proxy for all the agricultural surpluses, *à la* Quesnay, but not for trade but for buying in silver to store value, a total of 1,107.3 tons of silver would be taken out of circulation each year. Then, China's 16,990 tons of stock could only last a maximum of 16 years. In reality, only a proportion of the 34.5 percent of China's total GDP exited from the market. Still, sooner or later, the economy would run out of silver.

In this context, the silver stock itself does not automatically qualify China as running a silver-based market economy, a crucial point that has been overlooked by most works on this subject so far.

(2) How did silver function in the economy?

If one assumes that silver was a fully-fledged common currency for the Chinese economy, our analysis should stop right here. However, a range of evidence indicates that it was not used exclusively as a currency with the following three characteristics (1) heterogeneity in quality and measurement, (2) silver premium, and (3) market exchanges without silver.

(a) Heterogeneity in quality and measurement

China's silver stock was made of a collage of about all the possible shapes, sizes and qualities under the sun. Amongst the Western coins, the common ones were (1) the Dutch 'Knight with Sword' (馬劍), (2) the Spanish 'Original Silver Dollars' (本洋) with various names such as 'Hair Coils' (大髻, 小髻) and 'Alien God' (番佛), (3) Portuguese 'Cross' (十字), (4) Mexican Carolus dollar or 'Eagle Dollar' (鷹洋), and (5) American 'Liberty Head' (蓬頭).⁸⁵ Apart from the Western coins, there were also Asian ones: British Hong Kong, British Indian, Franco-Saigon, and so forth. Japanese silver came in the form of sheets (枚) or bars. Coins came to China at different times: the Spanish ones before 1821; Mexican, after 1821; British-Hong Kong, after 1866; US, after 1873; Japanese, after 1871; Franco-Saigon, after 1885. In addition, there were silver nuggets. Pieces between 1 and 4 *liang* were called loose pieces (碎銀 *suiyin*); those under 1 *liang*, beads (滴珠 *dizhu*). Overall, foreign silver coins dominated the market due to the sheer quantity of the imports.⁸⁶

⁸⁴ Or, $M = PT/V$, where M is the actual money needed for all transactions a year; PT, the total value traded a year; and V, the velocity of silver in circulation a year. $M = PT/V$ is derived from the so-called 'monetarist equation' $MV = PT$, see Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, London: Publisher unknown, 1776, Book II, ch. II; Irving Fisher, *The Purchasing Power of Money*, New York: Macmillan, 1922.

⁸⁵ Zhao, *Dictionary*, pp. 613–4; also Hao, *Commercial Revolution*, pp. 35–46.

⁸⁶ Zheng Guanying 鄭觀應, 《鄭觀應集》 (*Selected Works of Zheng Guanying*), late Qing, 上海: 上海人民出版社, reprint, 1982, p. 691; Zhongguo Renmin Yinhang 中國人民銀行 (People's Bank of China) (編), 《中國近代貨幣史資料》 (*Materials on Chinese Monetary History of the Early Modern Period*), 第1輯, 北京: 中華書局, 1964, p. 749.

Between different silver coins, there was a pecking order. For example, the Mexican peso was normally discounted up to 25 percent against the Spanish peso despite their identical purity.⁸⁷ The discount rate peaked at 80 percent in 1856 in wake of the Taiping victory in the Nanjing region.⁸⁸ Very low quality silver coins faced the real possibility of rejection: Ningbo (寧波) bankers systematically refused to take eight types of low quality silver coins.⁸⁹

Generally speaking, there was no officially recognised silver currency in Ming-Qing China until 1889. The widely accepted Spanish-Mexican pesos (also called 銀圓, meaning ‘round silver coins’) gained at best a *de facto* quasi-currency status in certain regions of South China by grass-roots customs. The official tacit acceptance of the peso as a means to pay taxes occurred only after the Opium War.⁹⁰ On the other hand, apart from using foreign coins as raw material to cast *sycee* ingots, no serious attempt was made by the Ming-Qing state to end silver heterogeneity until 1889. The problem for China was not a technological one.⁹¹

Equally puzzling, no initiative to standardise silver was taken by the private sector, either, although currency was an arena where Chinese private entrepreneurs were traditionally active.⁹² What the private sector did was no more than create a what can be coined as ‘silver service’ including silver smelting and refinery for ingots (銀爐業), silver-assaying (估色) often involving cutting up coins,⁹³ and arbitraging between *sycee* and foreign silver coins for profit (洋厘).⁹⁴

But that was not all. To make the situation worse, there existed no uniform weight measures for the silver *liang* within the Qing bureaucracy, which certainly had the necessary power and administrative means to push a weight standardisation.⁹⁵ So, one *liang* meant different weights in different places: there were in all 56 regional Silver Weight Standards (市平兩) in operation, varying from 35.14 grams to 37.50 grams with a difference of 6.7 percent.⁹⁶ Only four local standards overlapped across the empire.⁹⁷ One

⁸⁷ Geng Ai-de 耿愛德, 《中國貨幣論》 (*On Chinese Currencies*), 北京: 商務印書館, 1933, pp. 150–4.

⁸⁸ Lin Manhong, 林滿紅, “嘉道錢賤現象產生原因 ‘錢多錢劣論’ 之商榷” (On ‘Over-Supply of Inferior Currency’ as the Causes of Devaluation of Money in China during 1808–1850), in Zhang Bincun and Liu Shiji 張彬村, 劉石吉 (主編), 《中國海洋發展史論文集》 (*Selected Essays on the Maritime History of China*), 卷 5, 臺北: 中央研究院, 1993, pp. 55–6.

⁸⁹ Peng Zheyi 彭澤益, 《中國工商行會史料集》 (*Selected Materials on Commercial and Industrial Guilds of China*), 北京: 中華書局, 1995, p. 27.

⁹⁰ Wang, ‘Chinese Monetary System’, pp. 438–9.

⁹¹ The best example is the Tibetan silver dollars (西藏銀幣) minted as early as in 1793 (Zhao, *Dictionary*, pp. 612, 614).

⁹² Good examples are (1) paper currency under the Song and (2) counterfeit bronze coins and bills of exchange under the Ming-Qing.

⁹³ Cribb, *Money*, pp. 121, 122.

⁹⁴ Chen Mingguang 陳明光, 《錢莊史》 (*A History of Native Banks*), 上海: 上海文藝出版社, 1997, pp. 149–50.

⁹⁵ Hence, one *liang* = 37.5 grams can serve only as a proxy.

⁹⁶ Zhang Huixin 張惠信, ‘銀兩的平色及名稱’ (Qualities and Names of Silver), 《故宮文物月刊》 (*Palace Museum Cultural Relics Monthly*), 臺北: 故宮博物院, 5, 1987, p. 130.

⁹⁷ These were: (1) 35.84 grams shared by Hunan’s Xiangtan (湘潭) and Yunnan (雲南), (2) 36.00 grams shared by Tianjin (天津) and Shenyang (瀋陽), (3) 36.05 grams shared between Beijing, Changsha (長沙) and Chongqing (重慶), and (4) 36.56 grams, also known as ‘the Grand Canal Standard’ (漕平兩), shared

liang had different weights even in the same region or organisation. In Zhili (直隸) alone, there were six parallel local silver weight standards of 35.16 grams, 36.00 grams, 36.05 grams, 36.18 grams, 36.80 grams and 37.43 grams. The margin of difference was 6.5 percent. Even the most authoritative measures used by the central government, the Treasury Silver Weight Standard (庫平兩) and the Customs Silver Weight Standard (關平兩) were different: One was 37.30–37.31 grams;⁹⁸ and the other, 37.68 grams. The misfit between what the Ming-Qing states were capable of achieving (in standardising aspects of economic life such as taxes) and the chaos (in silver weight measure) seemed deliberate.

Compared with the private sector, the state sector was tidy. There seems to have been several hundreds of private weight measures varying from place to place and from trade to trade.⁹⁹ For example, Hankou (漢口) (a trading hub along the Yangtze), had over 40 different silver weight measures in as late as the early twentieth century.¹⁰⁰ The Sshanxi native bankers (山西票號) had to develop their own weight standard ‘internal silver weight standard’ (咱平銀, 本平銀) to ease the chaos across markets.¹⁰¹ In some parts of coastal Jiangsu (江蘇), it became imperative for each household to keep a scale for weighing silver to overcome silver heterogeneity.¹⁰² To cash in on this mess, a specialised service was developed to convert different silver weights (扣平).¹⁰³

It is important to know that although the *sycee* ingots had an improved silver content the actual weight varied from piece to piece.¹⁰⁴ Ingots were customarily weighed when changing hands. The fineness of *sycee* also differed. It was a common practice amongst Ningbo bankers that locally cast *sycee* ingots at 4.55 *liang* each were automatically counted as an equivalent of 5 *liang* of ingot produced elsewhere, appreciating some 10 percent.¹⁰⁵

Judging from the lasting high degree of heterogeneity in silver quality and weight measurement, it was simply impossible for the market in China to have a homogenous price structure based solely on silver. In this context, despite of the publicity, silver was not a common and unified currency for the empire on its own right. If China appeared to have a single price measured by silver, it must have been done via another homogenous market medium (copper coins or rice, for example). If so, prices measured in silver had to be secondary or auxiliary; and silver itself a secondary or auxiliary currency. This is not to say that silver could not be used as a concept of value with which a virtual *liang* was

between Shanghai (上海), Yangzhou (揚州), Anqing (安慶), Jiujiang (九江) and Mongol's Kulun (庫倫), see Zhang, ‘Qualities’, p. 130.

⁹⁸ The Treasury Standard was finally settled for 37.30 grams in 1904.

⁹⁹ Wang, ‘Chinese Monetary System’, p. 433.

¹⁰⁰ Kuroda, ‘Copper Coins’, p. 84.

¹⁰¹ S & R (Sshanxi Caijing Xueyuan, Renmin Yinhang Sshanxi Fenhong) 山西財經學院, 人民銀行山西分行 (Sshanxi College of Finance and Economics, and Sshanxi Branch of People's Bank) (主編), 《山西票號史料》 (*Materials on Sshanxi Native Banks*), 太原: 山西人民出版社, 1990, pp. 135–6.

¹⁰² Kuroda, ‘Copper Coins’, p. 81.

¹⁰³ Chen, *Native Banks*, pp. 150–1.

¹⁰⁴ The only exception was probably the well standardised Taiwanese ingots (臺灣紋銀, 壽星銀) minted in 1837, 1853 and 1862 (Zhao, *Dictionary*, pp. 612, 614).

¹⁰⁵ Peng, *Selected Materials*, p. 27.

used in business accounting. But such virtual *liang* was one thing and the physically tangible *liang* in transaction was quite another.¹⁰⁶

The high degree of heterogeneity in silver quality and weight measurement also indicates that when and where silver was actually used in market exchange, traders bartered with each other due to the fact that silver pieces had to be evaluated individually every time. This piecemeal bartering for business was a major step backwards in a country where token money and paper currency were invented long before the Ming-Qing Period. The bartering nature of silver is highly consistent with silver as a secondary or auxiliary currency. It also indicates that silver was an optional currency which performed well only at the local level of market exchange. There was nothing magic about the use of silver in trade.

This piecemeal bartering also explains why Ming-Qing taxes accepted silver. Tax payment in silver was merely a disguised tax payment in goods, side by side with other standard items such as cloth, salt and grain. The *sycee* ingots represented the minimum quality to be used for tax payment. Similar equipments existed for rice and cloth. So, instead of establishing a common and unified currency, *sycee* ingots only made taxes easier.¹⁰⁷ There was nothing magic about the use of silver in tax payment, either.

China's silver heterogeneity determined silver to be an inefficient medium for market transactions. In turn, this inefficient nature discouraged any large quantities of silver for transaction at any given time. This inevitably inflicted a high cost for China's standardisation in silver quality and quantity, as the marginal gain from silver standardisation was unable to compensate the marginal cost of it. The fact that there was no gain in seigniorage when silver was used in bullion further undermined any attempt for standardisation by the government. China fell into a 'heterogeneity trap', the only main silver importing economy in Asia to do so. In comparison, India developed high-quality silver rupees. Ottoman had its silver currencies, *dirham* and *kuruş* (or *piastre*).

So, China had to wait until the very end of the Qing with the help of China's trading partners to build up the 'critical mass' to make silver standardisation worthwhile. In 1889, three centuries after the first shipment of foreign silver to China, the Guangdong mint finally manufactured China's own official coins, the 'Dragon Dollars' (龍洋), by copying from the Spanish.¹⁰⁸ Other provinces soon followed the suit: 1894 in Hubei (湖北), 1896 in Zhili, 1897 in Jiangshu, and 1898 in Fengtian (奉天), Jilin (吉林), Xinjiang (新疆), Anhui (安徽), Hunan (湖南), Fujian (福建), Sichuan (四川) and Yunnan. In 1910 the silver *yuan* coins (銀圓) was finally chosen as the basic unit, hence ending a complicated five-layer hierarchy.¹⁰⁹ When the timing was right, it took China only 20 years to complete silver standardisation.

¹⁰⁶ In late fifteenth century, officials' salaries were quoted in silver but paid in anything but silver, see 黃仁宇 Ray Huang, 《十六世紀明代之中國財政與稅收》(*Taxation and Governmental Finance in Sixteenth-Century Ming China*), Chinese edition, translated by A Feng, 臺北: 經聯, 2001, p. 52–3.

¹⁰⁷ By von Glahn's definition, *sycee* was 'uncoined silver', a crude, regressive form of money (his *Fountain*, p. 253).

¹⁰⁸ Cribb, *Money*, p. 125.

¹⁰⁹ The five layers were made of silver coins weighting 7 錢 2 分 (大洋), 3 錢 6 分 (小洋), 1 錢 4 分 4 厘, 7 分 2 厘, and 3 分 2 厘, see Cribb, *Money*, pp. 125–30.

The question is why the ‘heterogeneity trap’ lasted for so long. The answer lies in China’s own fully functional ‘copper currency’.¹¹⁰ China’s copper coins were (or at least seen as) the authorised legal tenders during the Ming and Qing.¹¹¹ They were far better standardised than silver in size, weight, reign-mark and fineness.¹¹² A secured return of 9.7 percent on average from seigniorage certainly played an important part in determining government commitment to copper mintage (see Table 7).¹¹³ Also, there is no evidence that foreign copper coins had a significant impact on China’s market.

Table 7. Rate of Seigniorage, 1628–32

	Copper coins produced (I)	Seigniorage (II)	II:I
Beijing Mint (北京)			
1628	129.5 million (235,454.5)	26,453.2 <i>liang</i>	11.2%
1629	130.6 million (200,923.1)	22,763.6 <i>liang</i>	11.3%
1631	145.1 million (223,230.1)	21,908.3 <i>liang</i>	9.8%
Nanjing Mint (南京)			
1631	366.0 million (563,076.9)	42,713.6 <i>liang</i>	7.6%
1632	345.1 million (530,923.1)	44,341.1 <i>liang</i>	8.4%
Average			9.7%

Source: Data for seigniorage, based on von Glahn, *Fountain*, pp. 187, 192; data for the official bronze coins to silver *liang* exchange rate, based on *ibid.*, p. 108.

Note: Figures in parentheses are converted to silver *liang*.

In China’s copper currency market, demand often outpaced supply, common when the economy was growing. The same high demand was not applicable to silver, as seen from the increase of prices measured by copper coins which were subject to their own pecking order with the Song coins (宋錢) at the top, almost as good as silver.¹¹⁴ This high demand

¹¹⁰ Technically, it should be ‘bronze currency’ because the currency was always an alloy. The copper proportion changed over time: 70 percent (during the Tang), 61 percent (as in 983 A.D.), 55 percent (in 1017), 40 percent (in 1127), and 60 percent (in 1684), see Gang Deng, *Chinese Maritime Activities and Socio-economic Consequences, c. 2100 B.C.-1900 A.D.*, New York, London and West Port: Greenwood Publishing Group, 1997, Appendix C. Apart from a short supply of copper, the debasement was a result of a need to make coinage easier, see Huang, *Taxation*, Chinese edition, p. 86.

¹¹¹ Among monetary historians of China, there has been a long debate on whether silver became the dominant currency (von Glahn, *Fountain*, pp. 253–5). Opinions are divided. China’s increased silver stock in itself supports the notion of silverisation, while China’s own records and anecdotes endorse the view that the role of bronze coins never diminished (Wang, ‘Chinese Monetary System’; Kuroda, ‘Copper Coins’).

¹¹² Although bronze coins were not completely uniform at any give time, the differences were limited due to a handful makes available: (1) the mainstream ‘legal tender’ (通寶), (2) ‘Taiwan Minor Mint Coins’ (臺灣小制錢) in circulation in the seventeenth and eighteenth centuries, and (3) ‘Kangxi Minor Mint Coins’ (康熙小制錢) or ‘Beijing Coins’ (京錢, 京墩) in circulation from 1660 to 1860 mainly in the capital city (Zhao, *Dictionary*, pp. 609, 612, 614).

¹¹³ According to Ray Huang, the rate was 40 percent, see Huang, *Taxation*, Chinese edition, p. 88.

¹¹⁴ Kuroda, ‘Copper Coins’, p. 71.

attracted rampant counterfeiting (低錢, 私錢) during the Ming-Qing Period.¹¹⁵ But the market was never fooled. Gresham's Law worked effectively,¹¹⁶ allowing counterfeits to operate freely. With a discount rate,¹¹⁷ they drove official coins out of circulation.¹¹⁸

The point is that if Gresham's Law worked for the copper coin market to allow counterfeits to drive good coins out of circulation, good copper coins must have also driven silver out of circulation. Therefore, the flight of silver was determined by the market itself.¹¹⁹ In the end, only shoddy copper coins were left to look after day-to-day market transactions.

So, overall silver functioned as a secondary and optional currency and overlapped to some extent but never replaced China's indigenous copper coins.¹²⁰ Undoubtedly, China's principle and common currency had to be the copper coin. In other words, the Chinese economy was able to function without silver but was unable to function without copper coins. Empirical evidence strongly supports this view.¹²¹ The alleged silverisation in Ming-Qing China does not look promising at all.

(b) Silver premium

The other face of the same coin of silver being a secondary and optional currency was the phenomenon of a silver premium. This is highlighted in Figure 2 where a common, low value and relatively homogeneous commodity, rice, is used for the test. Now the rice is the 'common currency', while copper coins, silver and gold are 'ordinary goods'. So, copper coins, silver and gold are measured by the weight of rice in *shi* (石) to see how much rice was needed to buy a unit of a currency (*wen* 文 and *guan* 貫 for the copper coins, and *liang*, 兩 for both gold and silver).

Figure 2. Indices for Currency Prices in Rice, 1710–1910

¹¹⁵ Lin, 'Over-Supply', pp. 388–92; Kuroda, 'Copper Coins', pp. 71–4. From 1790 to 1795, a total of 2.4 billion of such fake coins were confiscated by the Qing authorities (Lin, 'Over-Supply', p. 392), or 6.6 coins per head of the population (of 361.7 million as of 1812), see Deng, 'Population Statistics', Appendix 2).

¹¹⁶ Stated as 'bad money drives good money out of circulation', "Gresham's law" is named after Sir Thomas Gresham (1519–79) who made the initial observation. Macleod first coined the term in 1858 (H. D. Macleod, *The Elements of Political Economy*, London: Longman, Brown, Green, Longmans, and Roberts, 1858, pp. 476–8). The law defines people's propensity to spend inferior currency but hoard the superior one in a market economy.

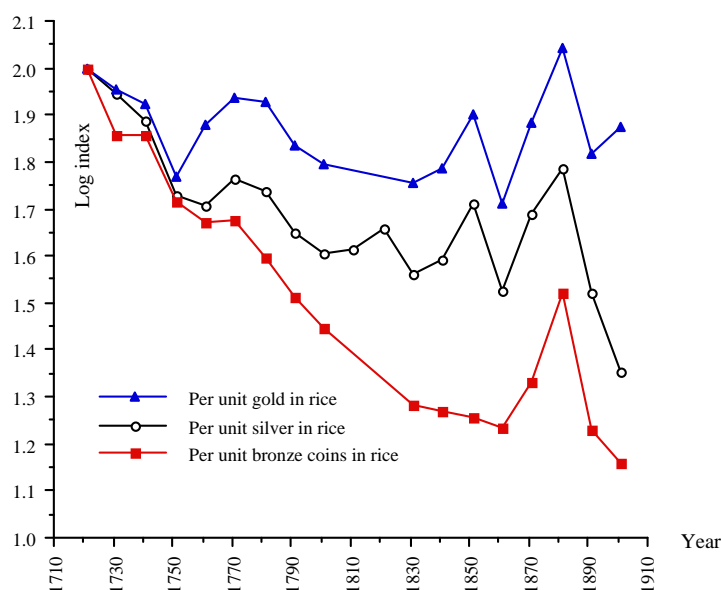
¹¹⁷ Counterfeits were customarily discounted by a factor of 3–5, see Wang, 'Chinese Monetary System', p. 432; von Glahn, *Fountain*, pp. 106–9; Kuroda, 'Copper Coins', p. 71.

¹¹⁸ This even included re-melting goods coins into counterfeits, see von Glahn, *Fountain*, pp. 249–50.

¹¹⁹ Wang, 'Chinese Monetary System', p. 426.

¹²⁰ *Ibid.*, pp. 426–7.

¹²¹ Von Glahn has a sharp comment that bronze coins 'played a far more important role in the commercial economy than is usually realized', and they 'displaced silver as the prevailing form of money in many regional market' during the heydays of silver importation in the eighteenth century, see his *Fountain*, pp. 254–5, 257).



Source: Yu, *Prices*, pp. 903–4;

Note: Gold price is derived from silver-gold exchange rates, based on Liu and Wang, *Market*, pp. 178–9.

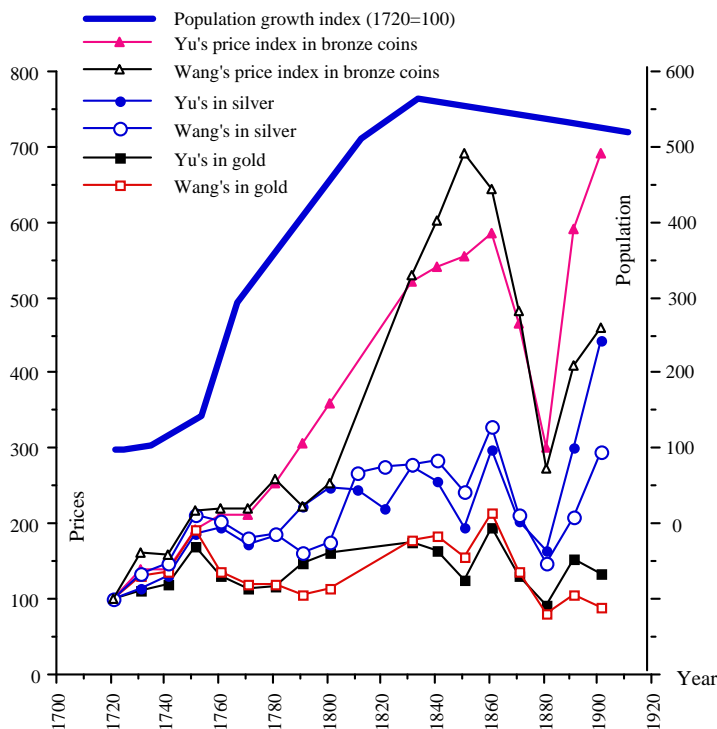
What strikes us is that the amount of rice needed to buy a unit of silver (and gold) remained reasonably stable. But it took a decreasing amount of rice to buy the same unit of copper coins. The gap between the ‘rice prices for silver’ and the ‘rice price for copper coins’ is the silver premium, meaning that if one wanted to get gold or silver one had to give up considerably more rice compared with getting copper coins. This is confirmed by an official named Lei Yixian (雷以誠) reporting to the Throne in 1840 that ‘the market overvalues silver so that the purchasing power of copper coins is eroded’.¹²² His observation was correct but his reasoning was not. From the economic point of view, the purchasing power of silver remained little changed due to the premium while the purchasing power of copper coins declined due to an increased demand for food, a point that we will deal with later.

One thing is sure: silver (and to a far lesser extent gold) and copper coins were not integrated in a coherent bimetallic system. Rather, they took their own courses. Copper coins remained as the working horse of the market medium, while silver entered the market half heartedly. The silver premium was a result of a universal need for keeping silver out of circulation to serve purposes other than circulation. Apart from moaning, the government could do little about it.

¹²² 雷以誠: ‘是重銀, 而錢又為銀所累’, see Li Yunjun 李允俊, 《晚清經濟史事編年》 (*Annals of Late Qing Economic History*), 上海: 上海古籍出版社, 2000, p. 36.

To take one step further to probe the determinant for such non-integration between silver (and gold) and copper coins, we can introduce market demand for and supply of food into our analysis. The rationale is that a properly functioning currency will reflect market demand and supply. In Figure 3, China's population growth is included as a proxy for the aggregate demand for food in the economy. An increased population leads to a higher food price if the food production function remains unchanged. The fluctuation of the rice prices in copper coins, both regionally and empire-wide, indeed moved closely with China's population pressure. Therefore, copper coins were doing the job as expected from a common currency. They did the job well. In contrast, the weak response of silver (and gold) to the demand indicates either the silver price was constantly distorted or silver was the last resort for market transaction.

Figure 3. Differentiae in Price Indices for per Unit of Rice, 1720–1900



Source: Population, Deng, 'Population Statistics', Appendix A; China-wide rice price, based on Yu, *Prices*, pp. 903–4; southern rice price, see Yie-chien Wang, 'Secular Trends of Rice Prices in the Yangzi Delta, 1638–1935,' in T. G. Rawski and L. M. Li, eds., *Chinese History in Economic Perspective*, Berkeley: University of California Press, 1992, pp. 35–68, pp. 40–7; silver-gold exchange rates, Liu and Wang, *Market*, pp. 178–9; bronze coins-silver exchange rates, Lin Manhong, 林滿紅, "嘉道錢賤現象產生原因 '錢多錢劣論' 之商榷" (On 'Over-Supply of Inferior Currency' as the Causes of Devaluation of Money in China during 1808–1850), in Zhang Bincun, Liu Shiji 張彬村, 劉石吉 (主編), 《中國海洋發展史

論文集》(*Selected Essays on the Maritime History of China*), 卷 5, 臺北: 中央研究院, 1993, pp. 359–60.

(c) Regional concentration of silver and circulation without silver

In a well-functioning market, a currency should not become concentrated in one region for long. But this took place in China during the late Ming. Despite the fact that large quantities of silver came in by sea, the dominant currency in the south was the copper coin. In North China, silver was noticeably cheaper: the copper coin-to-silver exchange ratio was only half of the southern level.¹²³ This was caused by local concentration of silver. Normally, the market would correct this by sending silver from the north to the south or coins from the south to the north. The movement would stop after a nationwide equilibrium was reached. This does not seem to have happened.

One may attribute this concentration to the state's efficiency in siphoning silver from the south to pay bureaucrats and soldiers stationed in the North. Even so, silver was not automatically used more extensively in the north. Once paid in silver, bureaucrats and soldiers quickly converted it to copper for day-to-day transactions.¹²⁴ Silver remained scarce in ordinary people's daily life in both regions. Those who actually used it in market transactions were called 'silver holders' (銀主) to distinguish them from the others who did not use it.¹²⁵ From the economics' point of view, the only possibility was that silver was shipped to the north and absorbed not by government employees but by large businesses. Silverisation could still have taken place but at a higher level. If so, silver should have been available for large businesses, especially through accumulation over time. Evidence suggests otherwise.

During the mid-Qing (c. 1740) silver began to retreat from large business transactions in North China.¹²⁶ With it, new financial devices gradually took over those business transactions, including demand silver-deposit certificates (銀票 *yinpiao*), money orders and bills of exchange (莊票 *zhuangpiao*, 會券 *huiquan*, 會票 or 匯票 *huipiao*),¹²⁷ multiple account settlements (過帳 *guozhang*), and outright paper currency (錢票 *qianpiao*). They were there to serve one purpose only: to by-pass the dependence of the wholesale sector on silver. This change was so decisive that by the 1850s up to 90 percent of commercial dealings became silver-free in many places in the north.¹²⁸ The practice soon spread to the south: Anhui, Hunan, Sichuan, Guangxi (廣西), Jiangsu and

¹²³ Kuroda, 'Copper Coins', pp. 74–5, 84–5.

¹²⁴ Kuroda, 'Copper Coins', p. 75; also Wang, 'Chinese Monetary System', p. 427.

¹²⁵ Yang Guozhen 楊國楨, 《明清土地契約文書研究》(*Land Deeds during the Ming-Qing Period*), 北京: 人民出版社, 1988, p. 280.

¹²⁶ The causes have been described as a combination of a decline in silver imports, an increased tax burden, and more active silver hoarding (Atwell, 'Bullion Flows', p. 88).

¹²⁷ *Huipiao* was not a Qing invention: It was used by Matteo Ricci (1552–1610), the Italian Jesuit who devoted his life to China, to purchase a house in Nanjing, see Nicola Trigault, *China in the Sixteenth Century: the Journals of Matteo Ricci 1583–1610*, New York: Random House, 1953, pp. 343–51.

¹²⁸ Wang, 'Chinese Monetary System', pp. 436–7, 440, 446; Huang Jianhui 黃鑑暉, '清初商用會票與商品經濟的發展' (Commercialisation and the Rise of Bank Drafts during the Early Qing), 《文獻》(*Literature*), 1, 1987, pp. 3–1.

Fujian.¹²⁹ It can be no doubt that at some stage, someone had to use the metal somewhere to settle the account. So, one may see this new development as part of silverisation. However, it is a fact that less and less silver entered the market place. So, it was a *de facto* de-silverisation process, especially considering that the final settlement could be made by copper cash or goods, too. So, by 1850, apart from some pockets, silverisation either slowed down or came to a full stop.

In other places where silver still remained, heterogeneity continued and the silver premium increased, particularly fast in the south (see Table 8). Silver's last stronghold was foreign trade, becoming more or less as a niche-market currency. This is de-silverisation in currency circulation has been so far overlooked.

Table 8. Growth in Silver Premium, South and North Compared

	Copper-coin price index (I)	Silver price index (II)	Premium index (I:II)
Southern rice price: Suzhou (蘇州府)			
1707	100	100	100
1785	286	179	160
1823	471	204	230
1850	329	90	370
Northern retail price: Zhili			
1800	100	100	100
1810	121	95	130
1820	118	85	140
1830	100	65	150
1843	118	63	190

Source: Based on Lin, 'Over-Supply', pp. 370–1, 372.

Side by side with this trend of trade without silver, copper remained very popular. Consequently, copper currency counterfeit operations reached their climax on an industrial scale in the mid-nineteenth century, cashing in on locally available resources and technology in the south.¹³⁰ In Zhejiang (浙江), 30–40 percent of all copper coins in circulation were fakes.¹³¹ In addition to copper, relatively homogeneous commodities such as rice and cotton cloth were customarily used as alternative currencies in many parts of China. As a result, large quantities of rice and cloth remained in domestic circulation all the year round. According to Wu Chengming, 64 percent of the total value of China's long distance trade was made of grain and cotton cloth. The share of salt was just 15 percent; tea, merely 8 percent; silk products, 6 percent; metals, 6 percent; and

¹²⁹ Lin, 'Over-Supply', pp. 397–9.

¹³⁰ Lin, 'Over-Supply', pp. 388–92. For a contemporary account, see J. B. Du Halde, *The General History of China*, London: J. Watts, 1736, p. 289.

¹³¹ Lin, 'Over-Supply', p. 390.

porcelain, 1 percent. Such an imbalance can easily be explained only if rice and cotton cloth were used as currencies.¹³² Also, there is no evidence that the rice and cloth exited from market circulation quickly and entered consumption. If they stayed in the market as currencies, there is a real danger of double counting rice and cotton cloth in China's GDP. But this is entirely another matter.

Now, the illusion that large quantities of silver would convert and integrate China's monetary system of the silver standard has proved to be groundless: it may have happened in India; but certainly not to China.¹³³

3. Which sector possessed silver and by how much?

Paradoxically, China imported silver but the market did not depend on it for every-day transaction. Where did the silver go? Somebody somewhere must have get hold of the silver. We single out four sectors: state, wholesale, banking and pawning to investigate further.

(1) State

A popular assumption is that the Ming-Qing state was the main absorber of China's silver stock through taxation, which in turn made the whole economy silverised. Such a view is flawed on several grounds. Firstly, the Ming-Qing taxes constituted only a small proportion of China's total GDP: well under 10 percent most of the time.¹³⁴ In the 1880s, the Qing total tax revenue was merely 2.5–2.8 percent of China's total GDP at was 80–90 million *liang* (3,000–3,375 tons). It is highly doubtful whether this percentage could determine how silver was used in the entire economy.

Secondly, Ming-Qing taxes were not all paid in money. Grain dominated the Ming direct taxes. Silver played only a marginal role. Before 1581, all direct taxes were meant to be payments in kind or labour (*corvée*) with optional currency conversion (折變 *zhebian*): In 1436, a total of four million *shi* of grain due for tax payment was converted to one million *liang* of silver. But this was considered as an unprecedented case, rather than the rule.¹³⁵ Under the much cited 'One-whip Method' tax regime (一條鞭法 *yitiaobian fa*) launched in 1581,¹³⁶ only 40–50 percent of the tax payment was ever made

¹³² Wu Chengming 吳承明, 《中國的現代化: 市場與社會》 (*China's Modernization: Market and Society*), 北京: 三聯書店, 2001, pp. 148–9.

¹³³ Chaudhuri claims that both India and China operated with 'an intrinsic standard of 99–100 per cent gold and silver', an 'essential factor in the operation of the Mughal and Ming-Ch'ing imperial economy' (Chaudhuri, 'Silver Flows', pp. 69, 74).

¹³⁴ E.g. Wang, 'Chinese Monetary System', p. 431; Albert Feuerwerker, 'The State and the Economy in Late Imperial China', *Theory and Society*, 13, 3, 1984, pp. 300, 322; Pierre-Etienne Will, *Bureaucracy and Famine in Eighteenth-Century China*, translated by Elborg Forster, Stanford: Stanford University Press, 1990; Gang Deng, *The Premodern Chinese Economy – Structural Equilibrium and Capitalist Sterility*, London and New York: Routledge, 1999, Appendix 7.

¹³⁵ Zhang Tingyu 張廷玉, 《明史》 (*History of the Ming Dynasty*), 1735, 北京: 中華書局, reprint, 1974, ch. '食貨志二' (Economy Two).

¹³⁶ See Fang-chung Liang, *The Single Whip Method of Taxation in China*, Cambridge [Mass.]: Harvard University Press, 1956.

in silver in the North; and 60 percent, in the South.¹³⁷ Given that the Ming agricultural tax revenue maintained at the level of 26 million *shi* of grain per year throughout the 1570s to the 1630s,¹³⁸ and that the highest price for rice was 0.96 *liang* per *shi*,¹³⁹ the total value of the agricultural tax revenue would be 25 million *liang* of silver. Forty percent of the revenue in silver would be 10 million *liang* (375 tons). Even so, this ratio may well be exaggerated: In the sixteenth century, the Ming revenue in silver was 2–5 million *liang* a year.¹⁴⁰ Not until 1620 did it reach the 10 million *liang* mark. The amount of silver available for the Ming state never exceeded 30 million *liang*, including the reserves held by the Imperial Depot (太倉庫).¹⁴¹ Overall, the Ming government claimed at most 5.8 percent of China's total silver stock, not enough to silverise the economy.¹⁴² The pattern is demonstrated in Table 9.

Table 9. Direct Tax Combination and Growth Indices, 1393–1903 (1661=100)

Year	Money (I), million <i>liang</i>	Grain (II), million <i>shi</i>	Value ratio (I:II)
1393	–	497 (32.6)	–
1424/5	0.9 (0.4 million <i>ding</i>) ^a	502 (32.6) ^b	0.5 (0.018:1)
1436	5 (1.0) ^c	338 (22) ^d	5 (0.18:1)
1457	0.04 (0.008 million <i>ding</i>) ^a	409 (26.6) ^e	0 (0.0005:1)
1522	0.2 (0.08 million <i>ding</i>) ^a	414 (26.9) ^f	0.01 (0.005:1)
1551	–	401 (26.1)	–
1578	–	409 (26.6)	–
1619	19 (4)	–	–
1628/33	36 (7.8)	435 (28.3) ^g	7 (0.28:1)
1644	–	406 (26.4)	–
1661	100 (21.6)	100 (6.5) ^h	100 (3.9:1)
1685	113 (24.4)	67 (4.4) ^j	156 (6.4:1)
1724	122 (26.4)	73 (4.7) ^k	164 (6.4:1)
1753	137 (29.6)	130 (8.5) ^l	54 (2.1:1)
1766	139 (29.9)	128 (8.3) ^m	54 (2.1:1)
1784	137 (29.6)	74 (4.8) ⁿ	97 (3.8:1)
1820	140 (30.2)	138 (9.0) ^o	41 (1.6:1)

¹³⁷ Ray Huang, *Taxation and Government Finance in Sixteenth-Century China*, Cambridge: Cambridge University Press, 1974, pp. 125–30; also Wu, *China's Modernization*, pp. 220, 222.

¹³⁸ Liang Fangzhong 梁方仲, 《中國歷代戶口, 田地, 田賦統計》 (*Dynastic Data of China's Households, Cultivated Land and Land Taxation*), 上海: 上海人民出版社, 1980, pp. 344, 346, 356.

¹³⁹ As in 1621–30, see Yu Yaohua 余耀華, 《中國物價史》 (*A History of Prices in China*), 北京: 中國物價出版社, 2000, p. 788.

¹⁴⁰ See Huang, *Taxation*, Chinese edition, p. 314.

¹⁴¹ Zhang, *Ming Dynasty*, ch. '食貨志二' (Economy Two). A sudden increase in the Ming silver reserves occurred after 1630. They peaked at 23 million *liang* in 1642 (see Atwell, 'Bullion Flows', p. 80). By then the days of the dynasty were hastily numbered.

¹⁴² We take into account (1) 3,750 tons of silver produced in China after 1506, (2) 1,264.0–2,385.0 tons of silver imported from the West in 1571–1644, and (3) 3,622–3,802 tons (gross, or 2,716.5–2,851.5 net) from Japan during 1550–1645. The total was at least 7,730.5 tons.

1841	136 (29.4)	–	–
1885	150 (32.4)	–	–
1894	151 (32.7)	–	–
1903	172 (37.2)	2 (0.1) ^p	2,385 (93:1)

Sources: Taxes based on Liang, *Dynastic Data*, pp. 185, 186–7, 190–1, 196–7, 344, 352, 354, 356, 358, 379, 390, 391, 398, 401, 415, 416, 418. Rice prices, based on Yu, *Prices*, pp. 788, 904.¹⁴³

Note: ^a Revenue collected in paper currency 錠 *ding*. It is included here to show the ratio between tax revenues in currency and in kind. One *ding* was worth 0.5 *liang* of silver.¹⁴⁴ ^b The rice price was 0.34 *liang* of silver per *shi*. The revenue in grain is worth 11.1 million *liang*. ^c Tax payment converted from 4 million *shi* of grain to silver. ^d 26 million *shi* as the Ming norm minus 4 million *shi* conversion to silver.¹⁴⁵ ^e The rice price was 0.33 *liang* of silver per *shi*. The revenue in grain is worth 8.8 million *liang*. ^f During this period, the rice price was 0.54 *liang* of silver per *shi*. The revenue in grain is worth 14.5 million *liang*. ^g The total value was in the region of 27.5 million *liang* of silver at the price of 0.97 *liang* per *shi*. ^h The total value was in the region of 5.5 million *liang* of silver at the price of 0.85 *liang* per *shi*. ^j The rice price was 0.86 *liang* per *shi*. The total value is 3.8 million *liang*. ^k The period rice price was 0.88 *liang* per *shi*. The total value is thus 4.1 million *liang*. ^l The rice price was 1.63 *liang* per *shi*. The total value is 13.9 million *liang*. ^m The rice price became 1.7 *liang* per *shi*. The total value is 14.1 million *liang*. ⁿ The rice price was 1.60 *liang* per *shi*. The total value is 7.7 million *liang*. ^o The period rice price was 2.1 *liang* per *shi*. The total value is thus 18.9 million *liang*. ^p The period rice price was 3.9 *liang* per *shi*. The total value is thus 0.4 million *liang*. At this point, direct taxes collected in grain were replaced by indirect taxes, mainly customs duties (see Table 8).

In this context, the livelihood of Ming officials still depended on the age-old tradition of ‘salary land’ (祿田 *lutian*) – farming land allocated according to ranks to produce food as salaries. The top official had 1,600 *mu* (畝), or 112 hectares, of salary land; and the lowest rank, 100 *mu* (7 ha.).¹⁴⁶ Salary payments in silver or copper coins remained meagre. In addition, huge quantities of grain, 4.0 million *shi* each year, were shipped from the south along the Grand Canal to the north to pay for a wage bill of 3.4 million *shi* for the government employees in and around the capital.¹⁴⁷ The Ming standing army of 1,190,000 troops lived predominantly on food rations from taxed grain or output from

¹⁴³ The rice price in Jiangnan was higher than elsewhere, see Wang, ‘Rice Prices’, pp. 40–7.

¹⁴⁴ Zhang Tingyu 張廷玉, 《明史》 (*History of the Ming Dynasty*), 1735, 北京: 中華書局, reprint, 1974, ch. ‘食貨志二’ (Economy Two).

¹⁴⁵ *Ibid.*: ch. ‘食貨志二’ (Economy Two).

¹⁴⁶ See Gang Deng, *Development versus Stagnation: Technological Continuity and Agricultural Progress in Premodern China*, Greenwood Press: New York, London and West Port, 1993, p. 109. According to the Ming regulation of 1392, officials below Grade Four ranks were paid in kind only, see Huang, *Taxation*, Chinese edition, p. 52.

¹⁴⁷ Huang, *Taxation*, Chinese edition, p. 55, 60, 65, 211.

military colonies (屯田).¹⁴⁸ Each soldier was entitled to an average of 11.9 *shi* (595 kilograms of husked rice) per year.¹⁴⁹ To use this as a benchmark, the Ming army needed 14.2 million *shi* of grain a year to maintain. The tax revenue in grain of 26–32 million *shi* easily covered that. Cash allowance was scanty, if at all.

Under the Qing, revenue in silver increased after the 1720s, largely due to the reform of combining poll and land taxes into one (攤丁入地 *tanding rudi*, or 攤丁入畝 *tanding rumu*). Throughout much of the eighteenth century, known as the period of prosperity, the amount of silver available for the state increased to a maximum of 80 million *liang* (3,000 tons), including (1) up to 30 million *liang* (1,237.5 tons) from direct tax, the ‘Land–Poll Combined Tax’ (地丁銀 *diding yin*),¹⁵⁰ (2) 10 million *liang* (375 tons) from indirect taxes on salt levy (鹽課 *yanke*) and customs duties (關稅 *guanshui*),¹⁵¹ and (3) an average of 40 million *liang* of treasury reserves (戶部存銀 *hubu cunyin*, meaning ‘silver reserves of the Ministry of Revenue’, see Table 10).

Table 10. Qing Treasury’s Silver Reserves, 1667–1774

	Yearly average (million <i>liang</i>)	Metric tons
1667–77	10.7	401.3
1678–88	20.0	750.0
1691–98	39.5	1,481.3
1703–13	51.7	1,938.8
1714–24	38.0	1,425.0
1725–35	47.9	1,796.3
1736–46	32.7	1,226.3
1747–57	31.9	1,196.3
1758–68	50.3	1,886.3
1769–74	75.8	2,842.5
Long-term average	39.9	1,496.3

Source: Lü Jian 呂堅, ‘康雍乾戶部銀庫歷年存銀數’ (Silver Reserves in The Qing Treasury under the Kangxi and Qianlong Reigns), 《歷史檔案》 (*Historic Archives*), 4, 1984, pp. 19–21.

However, until the 1820s, mixed tax payment was still the norm (see Table 9). The value of grain accounted for up to 18.9 million *liang* (708.8 tons).¹⁵² So, the silver

¹⁴⁸ Zhao, *Qing Dynasty*, ch. ‘兵制二’ (Armed Forces Two).

¹⁴⁹ It was recorded that 500,000 *shi* of grain were allocated per year to an army of 41,950 soldiers, averaging 11.9 *shi* (595 kilograms of husked rice) per soldier, see Zhang, *Ming Dynasty*, ch. ‘兵制一’ (Armed Forces One). This amount feeds 3.3 adults a year at the subsistence level.

¹⁵⁰ Liang, *Dynastic Data*, pp. 415–6, 426.

¹⁵¹ Zhou Bodi 周伯棣, 《中國財政史》 (*A History of State Finance in China*), 上海:上海人民出版社, 1981, pp. 419–21, 426; cf. Tang, *Custom Duty*, pp. 126–28.

¹⁵² As in 1820, see Table 9.

revenue was in the region of 61.1 million *liang* (2,291.3 tons) in 1820–30s. Given the pre-Opium War silver stock was 17,900.5–19,156.5 tons,¹⁵³ the silver revenue was likely to be 12.0–12.8 percent of China’s total silver stock of the time, more than twice of the Ming level.

After 1840, indirect taxes surpassed direct taxes for the first time after the Song (see Table 11.¹⁵⁴ Tax payment in kind dwindled to practically nothing (see Table 9). The treasury reserves were no longer feasible due to China’s mounting war reparations and foreign debts. But the Qing annual revenue remained stable at around 80 million *liang* (3,000 tons), now almost exclusively in silver. This is the equivalent of 17.7 percent of China’s total silver stock for the 1880s.¹⁵⁵ This was an increase of 38.3 percent of the 1820 level, which was significant to make a marginal difference in China’s silverisation but not overwhelming to fulfil the task single-handedly.

Table 11. Late Qing Tax Structure (Current Price, Million *Liang*), 1820–1910

	Direct taxes* (I)	Customs duties† (II)	Salt tax‡ (III)	I+II+III	I : (II+III)
1820	30.2 (100)	2.9 (100)§	10.0 (100)	43.1 (100)	2.3 (100)
1887	32.8 (109)	20.1 (693)	26.5 (265)	79.4 (184)	0.7 (30)
1890	33.7 (112)	22.0 (759)	26.5 (265)	82.2 (191)	0.7 (30)
1900	28.1 (93)	24.1 (831)	26.5 (265)	78.7 (183)	0.6 (26)

Source: Direct taxes, based on Liang, *Dynastic Data*, pp. 380, 400, 401, 414–18, 426; custom duties, based on Tang, *Custom Duty*, pp. 63, 66.

Note: *Including the Land–Poll Combined Tax, Grain–to–Cash Conversion (糧折 *liangzhe*) and Silver Loss Discount (耗羨 *haoxian*). †Including import-export duties (進出口正稅), domestic stamp duties (子口半稅, 復進口半稅), *lijin* or *likin* surcharge (厘金), and vessel levy (船鈔). ‡Salt tax of 10 million *liang* in the pre-1840 period as a proxy, based on the assumption that a 30 percent tax rate applied to the salt sale of 30 million *liang* although the tax rate varied widely with no single rate across the empire;¹⁵⁶ salt tax in the post-Opium War era is based on the 1900–08 average of 26.5 million *liang* also as a proxy.¹⁵⁷ §Estimated figure based on the highest share of the customs duty revenue (8.85 percent) during 1652–1766.

¹⁵³ The tonnage includes (1) 1,264.0–2,385.0 tons during 1571–1644, plus (2) 6,686.3 tons during 1650–1799, plus (3) 7,291.5–7,426.5 from Japan in 1550–1700, plus (4) 3,750 tons of China’s own, and minus (5) 1,091.3 tons in 1800–30 of the ‘opium rush’.

¹⁵⁴ For the Song, see Deng, *Chinese Economy*, ch. 6.

¹⁵⁵ The Qing total annual salary bill was 5,687,553.3 *liang* of silver (or 213.3 tons), including 1,405,497.3 *liang* as basic salaries (官俸) and 4,282,056 *liang* bonuses (養廉), see Chang, *Income*, p. 320. The rest of the revenue was for soldiers’ living allowances, public works, famine relief and war reparations.

¹⁵⁶ For salt tax revenue, see Zhou Bodi 周伯棣, 《中國財政史》 (*A History of State Finance in China*), 上海: 上海人民出版社, 1981, p. 426.

¹⁵⁷ See S. A. M. Adshead, *The Modernization of the Chinese Salt Administration, 1900–1920*. Cambridge [Mass.]: Harvard University Press, 1970, p. 25.

(2) Banking and money lending

The Sshanxi native bankers have been hailed as the best example of Chinese entrepreneurs who promoted indigenous capitalism in Ming-Qing China. However, Sshanxi banks emerged very late (1823) and short-lived (till *c.* the 1920s).

Until the mid-nineteenth century, the services provided by native banks were mainly silver remittances. In 1853, the total sum sent to the recipients via the Sshanxi banks was 174,577 *liang* of silver (6.5 tons), of which 81.7 percent of the funds were for merchant houses, 17.6 percent for individuals, only 0.7 percent for bureaucrats.¹⁵⁸ The main boost for growth came in 1861 due to the state need for revenue remittances to Beijing by provinces and customs.¹⁵⁹ From 1861 to 1911, the silver remittances totalled 236.6 million *liang*, averaging 6.1 million *liang* (228.8 tons) a year.¹⁶⁰ This was only 7.6 percent of the later Qing annual revenue.

With collaboration with the state, by 1900 the total number of bank branches of the Sshanxi reached 647 dotted in 124 locations.¹⁶¹ The average assets were worth 10,000 to 20,000 *liang*. Altogether, their total capital was around 6.5–13.0 million *liang*, averaging 9.8 million *liang* (367.6 tons), the equivalent of just 2.2 percent of China's silver stock of the time.

Due to the constraint of family ties, there was no empire-wide operation by any single bank. Ri-sheng-chang (日昇昌), Wei-tai-feng (蔚泰豐) and Ri-xin-zhong (日新中), the famous 'Big Three', had in all only 35 branches in 23 locations in early twentieth century.¹⁶² In addition, the profitability of these banks was low: in 1852, end-year net profit of the most successful Ri-sheng-chang (日昇昌) was merely 714.2 *liang*. Even in the early twentieth century (1906), its end-year aggregate net profit was still just 2,051.3 *liang* from all 14 branches with total assets of 360,000 *liang* (or 13.4 tons) on the book.¹⁶³ The annual growth of profit was less than 2.0 percent a year. Given that China's price index in silver increased 1.7 percent a year during the same period, the net annual increase was about 0.3 percent. So, the bank was clearly stagnant.

¹⁵⁸ S & R, *Native Banks*, p. 40.

¹⁵⁹ Kong Xiangyi 孔祥毅, '山西票號與清政府勾結' (Collaboration between Sshanxi Native Banks and the Qing Government), 《中國社會經濟史研究》 (*Studies of Chinese Economic History*), 3, 1984, pp. 1–7.

¹⁶⁰ S & R, *Native Banks*, pp. 130–9; 242–9.

¹⁶¹ Tian Shumao 田樹茂, 《晉商史料研究》 (*Study of Historical Materials on Sshanxi Merchants*), 太原: 山西人民出版社, 1994, Appendix.

¹⁶² Wei Juxian 衛聚賢, 《山西票號史》 (*A History of Sshanxi Native Banks*), 重慶: 說文社, 1944, pp. 160–202; also Liu Jiansheng, Liu Pengsheng, Liang Sibao, Yan Hongzhong, Wang Ruifen and Fan Jiangchun 劉建生, 劉鵬生, 梁四寶, 燕紅忠, 王瑞芬, 樊江春, 《晉商研究》 (*Sshanxi Merchants*), 太原: 山西人民出版社, 2005, pp. 160–2.

¹⁶³ Wei, *Native Banks*, pp. 160–202. This is about 25,700 *liang* per branch, not too far off the 20,000 *liang* mark. The low profit was determined by low charges, only 0.6–1.4 percent of the customer's capital, while the low charges were driven by throat-cutting competition between rival native bankers, see Wei, *Native Banks*, pp. 223–8.

During the Qing, the loans provided by sole money-lenders were much smaller than those from the native banks, rarely exceeding 200 *liang* and often in copper coins.¹⁶⁴ Accordingly, moneylenders' capital assets were small because they did not enter the wholesale sector. Their operation was negligible in relation to China's silver stock.

The Sshanxi banks' business depended heavily on the Qing government's finance.¹⁶⁵ Thus, its share should be viewed as part of the silver held by the state to avoid double accounting.

(3) Wholesale

There is no information regarding how much silver was processed and used by the private sector. One thing is generally agreed: silver was not used extensively in the retail sector; the wholesale and banking/money-dealing sectors were where the silver was.

It is impossible to speculate the actual share of investment in wholesale in China's total commercial GDP, let alone the investment in silver. Such information is not available.

The number of wholesale merchants in Ming-Qing times has also remained unknown. A reasonable approach is to use the number of compradors as a proxy. By the end of the nineteenth century, China had about 10,000 compradors (50,000 including their families) with an aggregate wealth worth 493–530 million *liang* of silver (18,487.5–19,875.0 tons).¹⁶⁶ This is the equivalent of 15.4–16.6 percent of China's total GDP owned by 0.01 percent of China's population. Each comprador household had on average total assets of 49,300–53,000 *liang* (1.8–2.0 tons). If all converted to silver, this group's wealth would be greater than China's silver stock (as of 1886).

Historically, the comprador class took shape after the Treaty of Nanking of 1843 as the replacement for the monopolistic *Cohong* merchants. So, the comprador class represented a new economic order in the wake of a commercial revolution and the commercial capitalism which were imposed on China from the West.¹⁶⁷

Evidence also indicates that before the Treaty of Nanking, Chinese merchants of the private sector were much less affluent than the average comprador. Therefore, we cannot use the comprador class as a proper representative.

Information on the share of wholesale value and wholesalers' investment is notoriously difficult to get. The best we can do is to piece together some cases. It is known that the total volume of China's tea export was 605,000 *dan* (擔) in 1838.¹⁶⁸ This was about 20 percent of China's annual tea output.¹⁶⁹ Tea was sold at 3.7–15 *liang* per *dan* in the open

¹⁶⁴ Liu Qiugen 劉秋根, 《明清高利貸資本》 (*Usury Capital during the Ming-Qing Period*), 北京: 社會科學文獻出版社, 2000, pp. 41–4, 55, 69–72.

¹⁶⁵ So much so, they had a nickname of the 'Second Ministry of Revenue'.

¹⁶⁶ See Huang Qichen 黃啓臣, '明清廣東商幫' (Merchant Groups in Guangdong during the Ming-Qing Period), 《中國社會經濟史研究》 (*Studies of Chinese Economic History*), 4, 1992, p. 36; also Yen-P'ing Hao, *The Comprador in Nineteenth-Century China: Bridge between East and West*, Cambridge [Mass.]: Harvard University Press, 1970, p. 105.

¹⁶⁷ Hao, *Commercial Revolution*, p. 342.

¹⁶⁸ Wu, *China's Modernization*, p. 149; cf. Lin, 'Silver Outflow', p. 30.

¹⁶⁹ This is based on three million *dan* of tea a year after the war, see Tang Qiyu 唐啓宇, 《中國作物栽培史稿》 (*A History of Cultivation of Crops in China*), 北京: 農業出版社, 1986, p. 517.

market of tea-producing regions, averaging 9.4 *liang* per *dan*,¹⁷⁰ a price we assume wholesalers paid. On top of that, there was a transport cost from Fujian to Guangzhou at around 2.1 *liang* per *dan*. The total investment made in silver by the tea exporters was in the region of 7 million *liang* (262.5 tons), or 21.9 percent of China's total retail value of tea.¹⁷¹ This is considerably lower than salt because tea was far less controlled by state licensing regulations.

To take the salt merchants (鹽商) as another example, they originated in Sshanxi and were intimately linked to the Ming state due to the private-public partnership in transporting grain to feed army garrisons along China's long border line in the North, commonly known as the '1371 Salt Policy' (開中鹽法).¹⁷² As the reward of their services, the private grain transporters were allowed to undertake the salt trade. Under this salt dealership scheme (鹽鈔, 鹽引), licensed salt merchants collectively supplied the empire with a homogenous, price and income inelastic product in salt.

Although qualified as wholesalers, these salt merchants constituted of a large number of small operators with small investments. To take Sshanxi's Salt Lake in Yuncheng (運城鹽湖, 河東湖), one of the salt production centres of the Qing, as an example,¹⁷³ the total annual output of 100–180 million *jin* (斤), or 59,680–107,430 metric tons,¹⁷⁴ was divided into some 427,000–751,000 licensed portions (根窩) at 240–250 *jin* each (as of from 1730 to 1850).

In 1782, a total of 425 salt merchants shared 667,000 licensed portions (as of 1791), averaging 1,570 portions each at 376,800 *jin* (225 tons).¹⁷⁵ About 40 percent of the salt was traded by small and irregular dealers, a traditional pattern of the salt trade.¹⁷⁶

The total FOB value of 376,800 *jin* was 3,770 *guan* (貫).¹⁷⁷ This was roughly 3,770 *liang* of silver of the time, one *liang* per 100 *jin* for the average salt merchant.¹⁷⁸ The money invested in 376,800 *jin* salt could buy 95–105 *mu* (畝) of good-quality free-holding land (絕賣, 絕契) in Suzhou (蘇州) during the same period,¹⁷⁹ not enough to make millionaires.

Collectively, the total 180 million *jin* of salt was a total investment worth about 1.8 million *liang* of the FOB price for the Sshanxi Group. Considering the fact that an adult

¹⁷⁰ Huang Miantang 黃冕堂, 《清史治要》 (*A Brief History of the Qing*), 濟南: 齊魯書社, 1990, p. 441; also Lin, 'Silver Outflow', pp. 234–5. Similarly, prior to 1840 the average price for tea at China's domestic market was 11.3 *liang* per *dan*, see Wu, *China's Modernization*, p. 299.

¹⁷¹ See Table 1.

¹⁷² Zhang Zhengming 張正明, 《晉商興衰史》 (*Rise and Decline of Sshanxi Merchants*), 太原: 山西古籍出版社, 1995.

¹⁷³ The Salt Lake happens to be the third largest inland salt lake in the world.

¹⁷⁴ One Qing *jin* equals 596.82 grams.

¹⁷⁵ Xu Dixin and Wu Chengming, *Chinese Capitalism, 1522–1840*, Basingstoke and London: MacMillan Press, 2000, pp. 348, 351. It is worth noting in the 1640s there were only 6,304 licensed salt merchants in for a total of 82.0 million *jin* of salt with an average of only 13,000 *jin* (7.8 tons) per head (Xu and Wu 2000: 348–9). So, the size of business declined over time.

¹⁷⁶ Wang Zhenzhong 王振忠, 《明清徽商與淮揚社會變遷》 (*Anhui Merchants and Social Changes in the Huaiyang Region during the Ming-Qing Period*), 北京: 三聯書店, 1996, p. 101.

¹⁷⁷ Yu, *Prices*, pp. 935–6. The calculation is based on 10 *wen* (文) per *jin* of salt, FOB.

¹⁷⁸ Lin, 'Over-Supply', p. 359.

¹⁷⁹ Yang, *Land Deeds*, p. 242.

male in China needs 5–10 grams of salt per day or 2–3 kilograms per year, the total consumption of salt in the empire was in the region of 1,800 million *jin* with the assumption that one third of China's population were children, each consuming half of the adult intake. So, the Sshanxi salt dealers' 180 million *jin* provided 10 percent of China's total salt market.¹⁸⁰ Thus, the total investment by the salt sector can be estimated as 18 million *liang* (675 tons),¹⁸¹ or 30.1 percent of China's total retail value of salt.¹⁸² Salt merchants should be considered as an exception rather than the norm due to the monopolistic nature of the salt trade.

If the aggregate wholesale value of 20 percent applies to all trades (using tea exporters as a benchmark), China's wholesale sector would have a total investment of 79.7 million *liang* (2,988.8 tons) in the 1830s.¹⁸³ This would be 15.6–16.7 percent of China's pre-Opium war silver stock when silver began flowing out (17,900.5–19,156.5 tons). It is a respectable share but not overwhelmingly high. In particular, the wholesale sector did not help much in China's silverisation: at best it overlapped in a very limited way with copper currency sphere.¹⁸⁴

So far, apart from the compradors, no other group was capable of tapping into the lion's share of China's silver. This is indeed puzzling: where did the silver go before the compradors?

(4) Pawning

Historically, pawnshops originated from business venture of Buddhist temples during the Tang Period (618–907).¹⁸⁵ Pawnshops operated on a much larger scale and scope compared with the other silver-users. As specialised short-term credit providers in an economy which regularly needed bridging funds to pay taxes and debts, they were concentrated in urban centres. Their number grew fast. During the Ming, Nanjing, the capital, had 500 pawnshops, while during the Qing Beijing, also the capital, had 600 to 700 pawnshops. Guangzhou during the had 1,243.¹⁸⁶ Pawning also operated at the township level. Changshu Town (常熟) in Jiangsu had 37 pawnshops (as in 1681). Xinhui Town (新會) in Guangdong had 112 pawnshops (in 1840). Local towns in Hubei had in all 385 pawnshops (in 1745).¹⁸⁷ The number of pawnshops increased steadily by a factor of 3 from 1685 to 1812 (see Table 12). By then pawning had become one of the three pillars of China's commercial sector together with salt trade and timber trade.¹⁸⁸ The sector had its own guilds since 1681.¹⁸⁹

¹⁸⁰ Chang Chung-li's figure is much higher at 2,400 million *jin* a year, see his *Income*, p. 306.

¹⁸¹ This is compatible with observation by Song Yingxing (1587–1666) that the collective total wealth (business capital included) of the salt merchants was in the region of 30 million *liang*, see Song Yingxing 宋應星, 《宋應星佚著四種》 (*Four Re-discovered Works by Song Yingxing*), early Qing, 上海: 上海人民出版社, reprint, 1976, ch. 1.

¹⁸² See Table 1.

¹⁸³ See Table 1.

¹⁸⁴ Wang, 'Chinese Monetary System', p. 427.

¹⁸⁵ Qu Yanbin 曲彥斌, 《典當史》 (*A History of Pawning*), 臺北: 華成圖書, 2004, ch. 4.

¹⁸⁶ Qu, *Pawning*, pp. 17, 21, 58.

¹⁸⁷ *Ibid.*, p. 67.

¹⁸⁸ *Ibid.*, pp. 67–8.

¹⁸⁹ *Ibid.*, pp. 76,

Table 12. Growth in Number of Pawnshops, 1685–1812

	North China	South China	Total	Index
1685	5,210	2,485	7,695 ¹⁹⁰	100
1724	7,265	2,639	9,904	129
1753	12,141	5,934	18,075	234
1812	12,085	11,054	23,139	301
1887	–	–	1,713	22

Source: Liu Jiansheng, Liu Pengsheng, Liang Sibao, Yan Hongzhong, Wang Ruifen and Fan Jiangchun 劉建生，劉鵬生，梁四寶，燕紅忠，王瑞芬，樊江春，《晉商研究》(*Sshanxi Merchants*), 太原: 山西人民出版社, 2005, p. 199.

The assets varied amongst pawnshops. Most pawnshops were collectively owned by share-holders. They thus transcended individual wealth constraints on growth. A large shop had capital worth 30,000–40,000 *liang*. A small one had on average 1,000–2,000 *liang* each. Total assets of a pawnshop chain could reach 100,000 *liang* or more (3.8 tons).¹⁹¹ The growth was concentrated in the north, matching the geographic distribution of silver.

Although it is extremely difficult to unveil the aggregate silver investment in the pawning sector, from the data of 72 pawnshop investments made in silver during c. 1770–1910 in Sshanxi (山西) where pawning was well developed, the average sum was 14,000 *liang*.¹⁹² If this is used as a proxy, regardless of the decline of the sector after 1860, by 1812 the total silver invested in the sector was likely to be 323.9 million *liang* (12,148.0 tons). This is the equivalent of 63.4–67.9 percent of China's total silver stock prior to the Opium War (17,900.5–19,156.5 tons).

Due to the physical features of the metal, silver was better suited to store value than copper coins and ordinary goods. It was naturally applicable to the pawning sector. Ming-Qing pawnshops were genuinely silverised, keeping large quantities of silver all the time. The peculiarity of silver in pawnshops was that not only did silver return, it brought back an interest in silver.¹⁹³ However, it is crucial to understand that the silver invested in

¹⁹⁰ Retrospectively, back in 1570, when foreign silver made its way to China, the country might have had 2,800 pawnshops if there was a linear growth.

¹⁹¹ Liu, *Usury*, p. 81; Liu *et al.*, *Sshanxi Merchants*, p. 205; Qu, *Pawning*, pp. 70–4.

¹⁹² This is confirmed by contemporary writers who commented that a decent pawnshop needed at least 10,000 *liang* investment, see Ai Na, the Lay Buddhist 艾納居士, 《豆棚閒話》(*Gossip from a Bean Shed*), early Qing, 上海: 上海古籍出版社, reprint, 1983, ch. 3; Luan Chengxian 樂成顯, '明末典業徽商一例: 《崇禎二年休寧程虛宇立分書》研究' (A Case Study of *Family Property Division Document by Cheng Xuyu of Xiuning County in 1629*), 《徽州社會科學》(*Social Sciences in Anhui*), 3, 1996, pp. 146–5.

¹⁹³ Pawning may be related to but not identical with usury. During the Qing, the 'normal' interest rate charged by the pawning sector was between 1–3 percent per month, not too different from other financial institutions, see Zhou Hui 周暉, 《金陵瑣事剩錄》(*More on Everyday Life in Nanjing*), late Ming, 北京: 文學古籍刊行社, reprint, 1955, vol. 3; Ling Mengchu 凌濛初, 《初刻拍案驚奇》(*Table-Slapping*

pawnshops was not a currency for market circulation but an interest-bearing capital. Although sitting on a mountain of silver, the sector had no incentive in standardising silver as a currency.

By taking collaterals, the business faced very low risks under normal circumstances. Therefore, individual and institutional investors flocked in,¹⁹⁴ including government departments, the army, and, no less, Qing emperors themselves.¹⁹⁵ Amongst civilian investors, merchants from Sshanxi and Anhui were most prominent. Accordingly, pawnshops were categorised during the Qing as civilian pawnshops (民當 *mindang*), official pawnshops (官當 *guandang*), and crown pawnshops (皇當 *huag dang*).¹⁹⁶ The state treated the pawning sector with the most favourable, token tax rates as low as 2.5 *liang* (93.8 grams) a year per enterprise.¹⁹⁷ All these created a high opportunity cost for silver to leave the pawning sector unless there was a *force majeure*.

In Ming-Qing times the capital investment in pawnshops was often collectively made, based on a rational choice. This finding challenges the stereotype that the Chinese were economically illiterate, burying their silver in jars. It also challenges the common view that silver was not used for investment on a large scale in China.

But keeping silver in pawnshops was not the most efficient way to facilitate commercial and industrial ventures. It was to some extent a liability for further development of the economy. The boom of the pawning sector reveals the pre-modern nature of the Chinese economy.

So, in a bizarre twist, the main beneficiary of windfall of foreign silver in China was the pawnshop. It took major external shocks to the pawning sector to end China's silver trap. During the political pandemonium caused by the sweeping Taiping rebellion (太平軍, 1851–64) in the South and Nian rebellion (捻軍, 1852–68) in the North, pawnshops became an easy target.¹⁹⁸ The last blow came in 1900 when the Allied Forces of the eight industrial powers attacked North China in response to the Boxers' Riot. All the pawnshops in Beijing were looted by the invaders.¹⁹⁹ In the following civil war, the sector was doomed.

In the early twentieth century, silver began to leave the pawning sector voluntarily or involuntarily, a point which goes beyond the capacity of this study. But one thing is sure, once the silver trap was removed, silver became increasingly cheaper relative to gold,²⁰⁰ and the rice price in silver began to respond more sensitively to the market demand and supply.²⁰¹

Stories), 1628, 北京: 人民文學出版社, reprint, 1991, p. 250. But such rates were considerably lower than the pre-Ming level of 5–7 percent per month (Qu, *Pawning*, pp. 25, 42), indicating that credit became cheaper due to abundant supply.

¹⁹⁴ To invest in a pawnshop was commonly viewed as a pension scheme by the Qings (Liu, *Usury*).

¹⁹⁵ Emperor Yongzheng (r. 1723–35) was a shrewd pawnshop operator himself before crowned. Emperor Qianlong (r. 1736–95) run his own pawnshops and even rewarded on occasions his officials and relatives with pawnshops, see Liu *et al.*, *Sshanxi Merchants*, pp. 217–8; Qu, *Pawning*, pp. 71–2, 180–2.

¹⁹⁶ Qu, *Pawning*, pp. 184–90.

¹⁹⁷ Liu *et al.*, *Sshanxi Merchants*, pp. 217–21.

¹⁹⁸ *Ibid.*, pp. 257–9.

¹⁹⁹ Qu, *Pawning*, p. 192

²⁰⁰ See Figure 1.

²⁰¹ See Figure 3.

C. Conclusion

We can now piece everything together the following percentages for the main silver holders during the 1830s:

State (including Sshanxi banking)	12.0–12.8%
Wholesalers	15.6–16.7%
Pawnshops	63.4–67.9%
Total	91.0–97.4%

So far, we have not taken the velocity of silver into account. All the sums are based on the annual totals. The share for the state should more or less remain the same because taxes, especially the Land-Poll, were conventionally collected once a year. So, the velocity was low. The share for wholesalers was almost certainly lower than 15.6–16.7 percent because of a high velocity in the market. If non-silver devices were widely adopted, the sector hardly needed silver. The share for pawnshops is tricky. The longest ‘normal’ term of pawning was two years while the shortest could be just a few days. However, given the interest charged, the ledger had all the incentives to pay back the loan as soon as possible, it is reasonable to assume that the velocity was high. So, silver would quickly return to the pawnshop to maintain the silver inventory.

We can have a new breakdown by assuming a silver-free wholesale sector. So, the new total becomes 75.4–80.7 percent of China’s silver stock before the Opium War, shared between the state and pawnshops. So, who he could indeed ‘build a palace with the silver bars from Peru’ was not a king of China but the pawnshop keeper.²⁰² So, China was a different world altogether.

As far as the 1830s are concerned, the amount of silver left after the deduction (75.4–80.7 percent) would be in the region of 4,712.5 tons. On average, it would make 11.8 grams (0.31.5 *liang*) per head of China’s population (398.9 million as in 1833, see Deng 2004: Appendix 2), about a quarter of the afore-mentioned 45.0 grams (1.2 *liang*). Silver was far scarcer than one might think in real terms.

It is a revelation that silver functioned as *the means* for capital investment in an inefficient, if not parasitic, financial sector. This undermines the ‘global ReOrient’ hypothesis which ignores the demand mechanisms regarding why China needed silver, by whom and for what purposes. In turn, the ‘silver-commercialisation’ paradigm for China is proven ahistorical and speculative in the Ming-Qing *milieu*. With the assumption that foreign silver could automatically generate more commercial growth and economic development, the paradigm may appear Sinocentric by putting China at the very centre of early globalisation. But the mindset is still Eurocentric, by arbitrarily casting China in a Western mould.

Overall, it is clear that China’s silver intake was far less than one might imagine. As a secondary, optional and sectoral currency, silver was marginalised by the copper currency and by-passed by credit money. Consequently, de-silverisation occurred. There can be no doubt that China interacted with the outside world via the silver trade. However,

²⁰² The phrase is after Don Hieronimo de Banuelos’s famous assumption, see Atwell, ‘Bullion Flows’, p. 74.

such inter-action did not automatically lead to China's integration into the world market system.²⁰³

Silver could have been used more productively, but it wasn't. So, silver did not bring China a miracle. It created a mirage instead. We can now get rid of the halo of silver.

²⁰³ K. N. Chaudhuri advocated three types of integrations in the international economy: temporal, geographical and structural. With it, different regional economies synchronise and inter-depend on each other (Chaudhuri, 'Silver Flows', p. 65). This occurred extremely slowly, if at all, in Ming-Qing China.

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