The Shanghai Rubber Stock Market Bubble of 1910

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Abstract

Amidst the worldwide speculation in rubber at the end of the 1900s, stocks of rubber companies quoted on the Shanghai Stock Exchange, which were all Western, became the focus of speculation in Shanghai. A rapid rise in the price of rubber stocks quoted on the Shanghai Stock Exchange between January and March 1910 was followed by an equally rapid drop. Meanwhile, Western rubber companies continued to issue stocks, still profiting by taking advantage of investors' speculation. The uniqueness of this financial bubble lies in its location in semi-colonized Shanghai where its stock exchange was established fully by Western businessmen, mainly the British. While quantitatively comparing the rubber stock market bubble in Shanghai with that in London, this article also provides qualitative evidence on the factors that fueled the bubble in Shanghai. In the end, it concludes with the financial institutional sources of fragility reflected in the financial crisis following this bubble.

Introduction

A financial bubble is classically defined as "a sharp rise in the price of an asset or a range of assets in a continuous process, with the initial rise generating expectations of further rises."[1] Whereas economic historical literature has devoted considerable attention to the phenomena of financial bubbles, relatively less attention has been paid to the distinct core-periphery dynamic in bubbles in the periphery.[2] Eichengreen believes that economic historians did not pay enough attention to investigating the asymmetries between the core and periphery countries before the early 1990s.[3] It was only until the new millennium that Flandreau and Jobst suggest research on financial crises considering crisis-proof countries as the core and crisis-prone countries as the periphery.[4] The study of the Shanghai rubber stock market bubble in 1910 (shortened as the "Shanghai Rubber Bubble") answers business historians' call for "discovering and explaining lesser known bubble episodes, particularly those that have occurred outside of the major industrial nations."[5]

After Qing China (1644-1912)'s defeats in the Opium Wars (1839-1842, 1856-1860) which forced this country on the world's periphery to open to foreign trade, Shanghai became the principal financial hub of Western businesses in China. Shanghai, connecting north and south China and outstanding in domestic financial services, attracted a growing number of foreign concessions to settle down for mercantile purposes with extraterritorial privileges. Backed up by the expansion of foreign merchant houses and colonial banks in Shanghai, the Shanghai Stock Exchange (SSE) was established in 1905 as

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[1] Kindleberger, "Bubbles," 20.

[2] On the history of financial bubbles, see, for example, Kindleberger and Aliber, *Manias, Panics, and Crashes*; Atack and Neal, *The Origins and Development of Financial Markets*; Quinn and Turner, *Boom and Bust*.

[3] Eichengreen, "The Gold Standard since Alec Ford," 58.

[4] Flandreau and Jobst, "The Ties That Divide," 978.

[5] Quinn and Turner, "Bubbles in History."

the first-ever stock exchange in China. However, the SSE was incorporated by Western businessmen (mainly the British) under British laws instead of indigenous efforts. It was on this stock exchange, which was opened to both foreign and Chinese investors, the Shanghai rubber stock prices bubbled and burst.

This article begins by surveying the international background of the Shanghai Rubber Bubble and reviewing the representative literature. To fill the gap in detailing this less-known financial bubble on the periphery, this research draws on primary sources from financial journalism in quantitative, qualitative, and comparative methods. Eventually, this article uncovers the fuel for the rubber speculation in Shanghai and the institutional fragility that led to the financial crisis following the bubble.

The Worldwide Rubber Boom

Rubber is an extractive product from rubber trees that were initially concentrated in the Amazon basin.[6] The revolutionary step in the rubber industry was not achieved until the discovery of vulcanization technology in the 1840s, which improved the dynamic properties of rubber for more usage.[7] Alongside the fast application of rubber,[8] the world's demand for it from the Amazon boosted from 156 tons in 1830 to 16,404 tons in 1890, an increase of a hundred-fold increase in sixty years.[9] In the last decade of the nineteenth century, the invention of pneumatic tires for bicycles and motor vehicles immensely contributed to the world's demand for rubber. The exports of rubber from the Amazon rose by 10,000 tons from 1890 to 1900, and what was more, by 6,000 tons from 1900 to 1905.[10]

The British were prescient in the 1870s to predict that wild rubber trees "might be insufficient to meet growing demand" and became the first to transplant and commercialize the plantation of Amazonian rubber trees in their metropole and tropical colonies.[11] Dean traced the history of how Brazilian rubber trees were transplanted by the British to their Southeast Asian colonies, with British Malaya being the most successful experimental field. With the advantages in labor and techniques as compared by Akers,[12] the exportation of cultivated rubber led by British Malaya began catching up with that from the Amazon in the first decade of the twentieth century and finally surpassed it around 1912.[13] According to Drabble, years before Malaya achieved a large number of rubber productions, in 1909 and 1910 in particular, the world's appetite for rubber driven by the rising automobile industry could hardly be met by Amazonian rubber.[14] It is at this period when a sudden boom in prices of raw rubber on the London market was achieved, from two shillings three pence in 1901 to four shillings four pence in 1908, to seven shillings one penny in 1909, arriving at its peak ever at eight shillings nine pence in 1910.[15]

The boom in the rubber industry stimulated British investors' enthusiasm for the formation of numerous rubber plantation companies in their Southeast Asian colonies, where they saw initial success in cultivated rubber. To finance their rubber businesses, British businessmen chose the SSE, close to

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[6] Furtado, *The Economic Growth of Brazil*, 142.

[7] Harp, *A World History of Rubber*, xi.

[8] For example, manufacturing waterproof footwear and clothing, factory machinery, railroad construction, telegraph cables, and more.

[9] Paul Lecointe, *L'Amazonie brésillienne*, 432-34.

[10] *Ibid.*

[11] Dean, *Brazil and the Struggle for Rubber*, 12.

[12] Akers, *The Rubber Industry in Brazil and the Orient*.

[13] Barker, *Rubber Statistics, 1900-1937*.

[14] Drabble, *Rubber in Malaya 1876-1922*, 62.

[15] Chong-Yah Lim, *Economic Development of Modern*, 323.

the rubber cultivations, and more importantly, the largest stock market of its time in the Far East, to float their growing number of rubber companies.[16]

Literature on the Shanghai Rubber Bubble

Mainstream Chinese economic historians blame Western businessmen for causing the Shanghai Rubber Bubble. Relying on an essay drafted by a Chinese writer in 1917, they agree on a nationalist assertion that certain Western businessmen in Shanghai intentionally spread false information on exaggerated profits of the bogus rubber companies they created only to fool Chinese investors.[17] After making enough money from the skyrocketing price of rubber stocks driven by speculation of Chinese investors, these Western businessmen escaped abroad and disappeared.[18] Exceptionally, Zhang argues that it was the speculation of foreign rubber companies that caused the Shanghai Rubber Bubble.[19] She finds that rubber companies rushed to the SSE to take advantage of the soaring price of raw rubber. However, as the output of rubber production did not come out instantly, these new rubber companies leveraged loans and stocks of other rubber companies to raise funds. Thus, the speculative behavior of the SSE rubber companies aggravated the bubble that burst at the cost of the investors.

There is more literature qualifying the consequences of the Shanghai Rubber Bubble that either describes the collapse of the Shanghai money market or blames the inability of the Chinese government to alleviate the market crash.[20] Nonetheless, it is rare to find research like Thomas's article that uses the share lists of the SSE to showcase the scale of the rubber stock price bubble in Shanghai.[21] While Thomas is the first scholar who conducts a quantitative analysis of SSE rubber stock prices during the bubble, his choice of analyzing only ten rubber stocks in the first seven months of 1910 to anticipate the general performance of SSE rubber stocks remains questionable. This article intends to anatomize the Shanghai Rubber Bubble by conducting in-depth analyses of both quantitative and qualitative methods. On the one hand, it aims to investigate the fuel for speculation in Shanghai; on the other, it explores the sources of fragility during and following the aftermath of the bubble.

The Shanghai Rubber Bubble

In the weekly share reports of the SSE throughout 1910, fifty-two stocks ever appeared within the category called "plantations": all were stocks of rubber companies. This article focuses on forty-eight SSE rubber stocks quoted in Chinese taels—it exempts the four stocks of which their quotations in British pounds only appeared briefly in the share reports and never resumed. The *China Stock & Share Handbook* records that forty rubber companies out of the forty-eight under discussion owned rubber estates in Southeast Asia.[22] Among the forty, thirty-five were subject to British Law and five to Danish Law. In this sense, this article refers to the majority of the rubber stocks in the Shanghai Rubber Bubble as British companies.

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[16] Lavelle, *The Politics of Equity Finance*, 37.

[17] Yao, "Shanghai xianhua", 1989, 119-120.

[18] See, Guo, "Shanghai de qianzhuang," 808; Li, "Qingmo xiangpi gupiao," 8–10; Liu, Shanghai jindaishi, 334.

[19] Zhang, "Xiangjiao gupiao", 143-54.

[20] On the former, see, for example, Min, "Shanghai xiangjiao fengchao," 126–42; Zhu, *Jindai zhongguo*, 232–33. On the latter, see, for example, Kikuchi, "Keizai kyōkō," 73–111; Wang, "Touji zhiwai," 21-28.

[21] Thomas, "An Intra-Empire Capital Transfer," 739–60.

[22] Morriss and Maguire, *China Stock & Share Handbook*, 179–224.

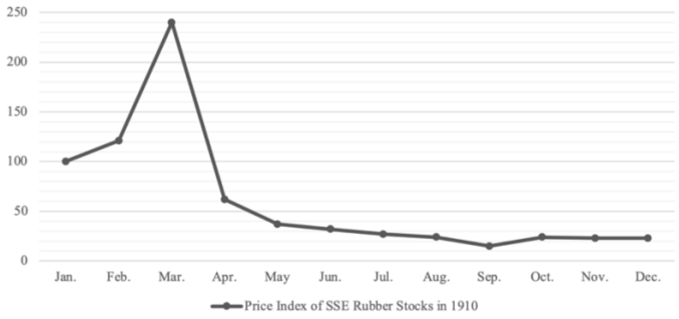

Fig. 1 Price Index of SSE Rubber Stocks in 1910
Source: Computed using the SSE share reports of 1910

Fig. 1 presents the weighted (by the number of shares) stock prices of the forty-eight SSE-listed rubber stocks quoted in Chinese taels in 1910. The SSE rubber stock prices climbed up from January to February by 20%. During this early stage of rubber speculation in Shanghai, on February 23 of 1910, for example, an English newspaper in Shanghai published a story of blind speculation. A Chinese buyer asked an SSE broker to purchase a hundred rubber shares for him. However, the buyer did not know any specific names of rubber stocks. "So long as they belong to rubber" was the only requirement from the buyer, and finally, he received what he requested.[23] This episode reflects, from one angle, Chinese investors' innocence during their initial encounter with foreign rubber stocks. The stock prices then surged to 240% of January's price in March, reaching the peak of the whole year's rubber stock prices. Against the soaring rubber stock prices, *Xinwen Bao*, a major Chinese newspaper in Shanghai was the first local media to urge the Chinese public to think twice about the potential losses before rushing to invest in a large number of rubber stocks.[24]

The doubling of rubber stock prices from February to March stimulated the excitement in rubber in Shanghai. In April, the *North China Herald* (*NCH*), a major English newspaper in Shanghai, carried an article with a fanciful title—"The Romance of Rubber," taking over one full page to explain the history of the raw rubber material and the importance of the booming rubber industry.[25] *Shi Bao*, a Chinese newspaper in Shanghai, partially translated this article into Chinese to introduce different types of rubber, which was back then a completely new raw material to the Chinese.[26]

Although the rubber stock price bubble burst immediately after its March peak, the number of rubber stocks quoted on the SSE continued growing (Fig. 2). Some British rubber companies even abandoned their original businesses, such as tapioca cultivation, to grow rubber during the boom.[27] In fact, only nineteen out of the forty-eight rubber companies had visible rubber outputs in 1910.[28] Moreover, the reports of the rubber outputs were not published until November 1910, meaning that the public could hardly be informed of the actual rubber production when they were blindly throwing money into the rubber stock market. What the newspapers were keen to advertise at that time was no better subject but the newly listed rubber companies in attractive titles, such as "A Large Rubber Company Emerged" in *Shen Bao*, a prominent Chinese newspaper in Shanghai.[29]

[23] *North-China Daily News*, February 23, 1910.
[24] *Xinwen Bao*, March 21, 1910.
[25] *North-China Herald*, April 8, 1910.
[26] *Shi Bao*, April 8, 1910.
[27] *North-China Herald*, April 22, 1910.
[28] *The North-China Daily News*, April 28, 1911.
[29] *Shen Bao*, April 27, 1910.

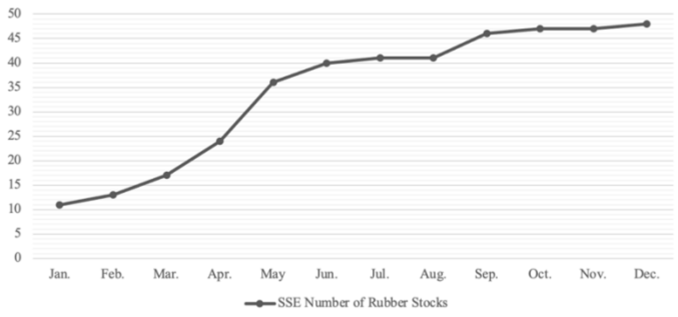

Fig. 2 Number of SSE Rubber Stocks in 1910
Source: Computed using the SSE share reports of 1910

Toward the end of April, the Chinese press reported that the raw rubber prices on the London market fell.[30] The average price of rubber on the London Market declined from over eleven shillings to ten in May, nine in June and July, and almost one shilling decrease every month afterward.[31] The SSE rubber stock prices stayed below the January price ever since April and kept falling (Fig. 1). However, "no little dissatisfaction exists over the present stagnation of the share market."[32] When it came to July, the rubber stock price slumped to only 27% of the January price. At such a time of stock price bust, unexpectedly, even the very poor Chinese in Shanghai were pawning their belongings or borrowing money from native banks to continue investing in rubber stocks.[33] In the next month, August, speculators in Shanghai still seemed unaware that the heyday of the rubber stock prices was gone. People wandering on the roads of Shanghai heard "of nothing but rubber."[34] Then, September witnessed another drop in the SSE rubber stock prices—to only 15% of the January price. Notwithstanding, a few speculators in Shanghai kept venturing to "predict that the selling price of rubber will make a sharp recovery and may even mount beyond the figure at which it stood early in April."[35] In fact, the prices remained drifting athwart all the way down until December 1910 and did not bounce back later in 1911, either.

In Comparison with the LSE

A comparison with the rubber stocks on the LSE, the primary stock market for British rubber companies, facilitates the identification of the features on the SSE. Unlike the SSE, where all stocks listed under the category of "plantations" were nothing but rubber stocks, it is rather difficult to verify which stocks quoted under the LSE mixed category named "tea, coffee, and rubber companies" belonged to companies concentrated in rubber businesses. Alternatively, by searching the keyword "rubber" among the names of LSE rubber companies in the database of *Investors Monthly Manuel (IMM)* digitized and organized by the Yale International Center for Finance (ICF), forty-seven appeared in the result. Excluding three companies with unclear data and one debenture, this article analyzes the stock prices of forty-three LSE rubber companies in total. Furthermore, there were assumingly no rubber

[30] *Xinwen Bao*, April 28, 1910.
[31] Morriss and Maguire, *China Stock & Share Handbook*, 176.
[32] *North-China Herald*, May 6, 1910.
[33] *Shi Bao*, July 24, 1910.
[34] *The Singapore Free Press and Mercantile Advertiser*, August 10, 1910.
[35] *The Straits Times*, October 12, 1910.

companies cross-listed on both the LSE and the SSE. Even though some rubber company names may sound alike, no evidence, for example, company structure or management personnel, reveals that they are, in essence, the same enterprise.

As in Fig. 3, SSE's rubber stock prices show a rapid increase from February (120%) to March (240%), a rapid drop off the January price in April (62%), and a constant fall till the end of 1910. In contrast, the LSE's moved gently up from 117% in February to 137% in March, 143% in April, then gently down to below the January price in August (96%), and kept declining to 77% by the end of the year. As such, it indicates that the LSE did not face a significant bubble as noticeable as that on the SSE. Meanwhile, the SSE rubber stock prices demonstrate greater volatility.

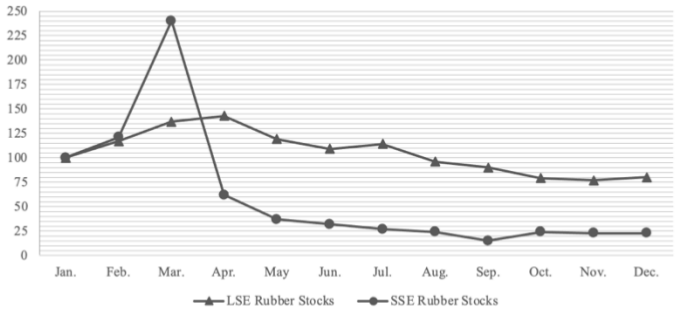

Fig. 3 Price Index of Rubber Stocks on the LSE and the SSE in 1910
Source: Computed using the SSE share reports of 1910 and ICF *IMM* database

Market capitalization is a useful indicator to identify the capital inflows to these two rubber stock markets. Fig. 4 presents the market capitalization of the rubber companies on the LSE in 1910. Most of the LSE rubber companies show gradual increases in market capitalization before its boom in April, and slight declines after that, except very few ones that joined the stock market after the peak of the rubber stock price in April 1910 in small capitalization sizes. However, the market capitalization of the SSE-listed rubber companies tells a different story. In Fig. 5, the SSE rubber companies display a more dramatic surge in market capitalization in March and early April and a larger scale of decreases after the April peak than the LSE's. Many more newcomers entered the SSE after the price bubble in March and boosted the market capitalization. This finding does not only indicate the more significant ups and downs of the market capitalization of the SSE rubber companies, but also evidences that the main purpose of the newly quoted rubber companies on the SSE was to make full use of the continual irrational speculation in Shanghai after the price bubble burst. Worth mentioning, that the total market capitalization of the SSE in 1910 summed up no more than one-third of the LSE's. In other words, the Shanghai stock market was only a small one compared to London's. To take another example, while the LSE quoted 1,198 stocks in total in 1910, the SSE only listed about 120—one-tenth of LSE's capacity.[36]

[36] Hannah, "A Global Corporate Census," 564; Liu, "Financial Capitalism on the Periphery," 109.

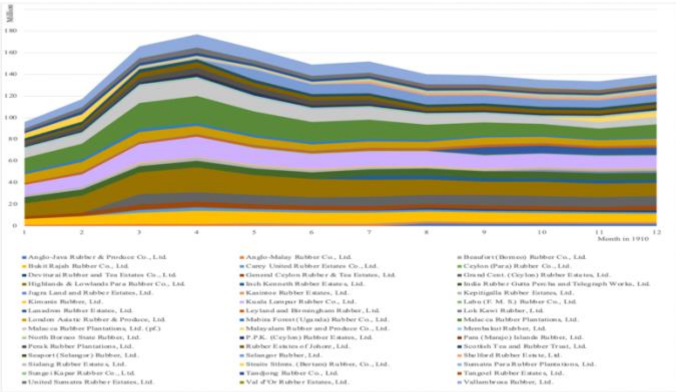

Fig. 4 Market Capitalization of LSE Rubber Stocks in 1910 (Unit: million taels)
Source: Computed using the ICF *IMM* database

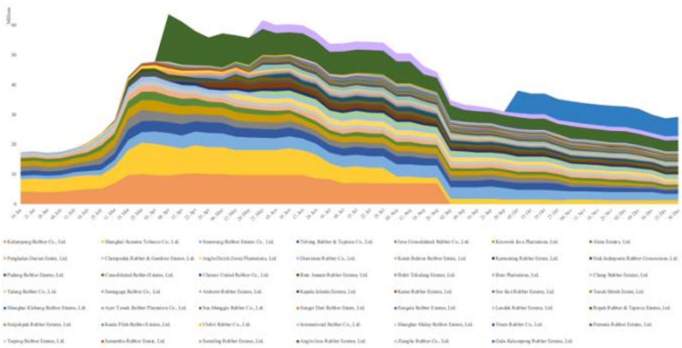

Fig. 5 Market Capitalization of SSE Rubber Stocks in 1910 (Unit: million taels)
Source: Computed using the SSE share reports of 1910

What is to Blame

Compared with the LSE, both the greater volatility of stock prices and the post-bubble market capitalization boost of the SSE rubber companies point to the higher speculation in rubber stocks in Shanghai than in London in 1910. What fueled the rubber speculation in Shanghai could serve as the path to trace the different dynamics in the core and the periphery stock markets.

The lack of investment opportunities primarily accounted for the higher speculation in rubber stocks in Shanghai. Being a new stock exchange incorporated in 1905 with only one-tenth of LES's total number of quoted stocks, the SSE listed nothing but rubber companies under the category of "plantations." By contrast, the LSE listed more plantation companies of diverse crops other than rubber, such as tea, coffee, tapioca, and so on. While the less concentration of investment in rubber stocks on the LSE decreased the probability of speculative fever solely in rubber in London, the lack of investment choices in high-profit products such as stocks from the booming rubber industry exacerbated the rubber speculation in Shanghai that fueled the stock price bubble.

False reports coming from the business operation of the rubber companies were partially responsible for fueling the rubber bubble in Shanghai as well. The SSE-quoted rubber companies were usually managed by Western agents that placed local managers in Southeast Asia to report back to Shanghai on the rubber plantations. However, some of these agents were later proved to have provided "pure swindles."

> "The absence of leaves was explained by saying that the proprietors of the property were following a special method of culture, which involved cutting off the young trees so as to make them bifurcate and produce a fuller crop of leaves […] there was less than half the acreage under rubber which had been represented."[37]

Falsehood like the above about the growing outcomes of the rubber trees in Southeast Asia enhanced the confidence of promoters and speculators in Shanghai to continue gambling for profits. One of the "worse deceptions" happened to Siak Indrapoera Rubber Concessions. When the company sent a well-known rubber expert from the Straits to evaluate the rubber estates in British Malay in July 1910, the company later found out that the expert's report about "500 acres of well-grown rubber that ought now to be four years old" was untrue. After appointing a second reputed rubber expert for reinvestigation, the fact surfaced that "they practically would have to start as a planting proposition with no hope of revenue till 1917."[38] As a cost, this rubber company vanished without surviving for more than a year.

In the case that one agent worked for several rubber companies at the same time, a piece of false or exaggerated information on the prospect of rubber cultivation could be influential enough to mislead a series of rubber companies to enter the stock market. It was only till 1911 that the rules of the SSE on the qualification of new companies and due diligence came into force.[39] That is to say, the underregulated SSE failed to take the responsibility for preventing unqualified companies with fraudulent rubber agents from being listed. What was more, the Shanghai Municipal Council, the administrative body that governed foreigners living in the International Settlement in Shanghai did not take any action to supervise the foreign stock market, either.[40] Hence, dishonest rubber agents and unverified rubber companies were left with enough room to take advantage of the SSE's regulation loophole to misinform speculators. When investors in Shanghai were exposed to a growing number of rubber companies with prospectus of the so-called promising rubber cultivation, it was vulnerable for them to expect a bounce-back of the rubber stock prices.

The Aftermath of the Shanghai Rubber Bubble

Since frauds in agents hired by SSE rubber companies and the SSE's lack of stringent regulations should be responsible for fueling the Shanghai Rubber Bubble, the mainstream Chinese historians' simple blame on the Western plot targeting Chinese investors does not unveil the full picture. Although the rules for this game of rubber speculation, that is to say, the functioning of the Western-style stock exchange and the listing of the foreign rubber stocks, were designed and implemented by the British mainly, both Chinese and foreign players shared the risk of business fraudulence and regulatory weakness.

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[37] *The Straits Times*, October 12, 1910.

[38] *The Straits Times*, December 29, 1910.

[39] *North-China Daily News*, August 24, 1911.

[40] Liu, "Financial Capitalism on the Periphery" 100–106.

After all, due to the huge amount of capital locked in the Shanghai Rubber Bubble, when the price of the rubber stocks plummeted, bank runs in both indigenous and foreign banking institutions crashed the Shanghai money market.[41] It is estimated that 53% to 70% of Chinese native banks in Shanghai went bankrupt between mid-1910 and early 1911.[42] Lacking sufficient funds to alleviate the market, the Qing government officials had to turn to foreign banks for solutions. According to Liu, the total domestic funds mobilized to save the collapsed Shanghai money market in 1910 amounted to Tls 2.8 million; by contrast, loans provided by foreign banks to the Chinese market added up to Tls. 8.5 million.[43]

In the low liquidity periphery, Chinese investors in Shanghai heavily relied on leverage to gamble on rubber stocks, wishing to maximize their chances to profit and to push the stock prices up. They sold liquidity when facing insolvency during the bust and drove the rubber stock prices substantially to the bottom. Chinese native banks of sole proprietorship, non-collateral credit instruments, unlimited liability, and only one-twentieth to one-tenth the capital strength of foreign banks, could hardly meet the demand from Chinese investors in the rubber mania.[44] The over-issuance of banknotes and the nonpayment of promissory notes by Chinese native banks further tightened the Shanghai money market and hit both Chinese and foreign banking institutions in Shanghai.[45]

What was more, the embezzlement of government funds from Chinese native banks by officials and bank owners triggered extreme anger from the Chinese public. It led to a domestic revolt against the incompetent Qing government. This is arguably by Wang and Kikuchi as the last straw for the falling Qing China.[46]

Conclusion

The Shanghai Rubber Bubble is a financial bubble that happened in the periphery of Imperial China during the closing years of its last dynasty, the Qing. Both the SSE established by Western businessmen in Shanghai and the stocks of Western rubber companies preset rules for Chinese players to follow in a subordinated position. The SSE showed greater volatility and higher speculation than the LSE during the rubber bubble, revealing its characteristic as a crisis-prone periphery market. If taking the fraudulence in Western rubber companies into consideration, not only Chinese but also Western investors in Shanghai shared the risks of the Shanghai Rubber Bubble. They both faced the infant SSE lacking rules to supervise the entrance and the performance of rubber companies. Not only the periphery but also the core suffered from the loss in the bubble.

While the traditionality of Chinese native banks with low liquidity served as the source of fragility that led to the financial crisis as a result of the Shanghai Rubber Bubble, foreign banks coming from the core served as the backstop in the Shanghai market crash by providing capital sources. However, the financial inferiority of Shanghai seen from the rubber bubble does not conclude the end of the periphery story. At the beginning of the new Republican Era (1912-1949) sequent to the fall of the Qing, the expansion of Chinese modern banks sponsored by governmental funds in contrast to the diminishing of traditional native banks, the establishment of the first Chinese Shanghai Stock Exchange at the

[41] See, for example, Siu, "Foreign Investment and the Raising of Capital," 648 and Cheng, *Shanghai Chien-Chuang*, 129.

[42] Min, "The Shanghai Rubber Boom," 135.

[43] Liu, "Financial Capitalism on the Periphery" 180–88.

[44] *Ibid.*, 61–65.

[45] McElderry, *Shanghai Old-Style Banks (Ch'ien-Chuang), 1800-1935*, 117–21.

[46] Kikuchi, "Keizai kyōkō," 111; Wang, "Touji zhiwai," 28.

beginning of the 1920s, the centralization of monetary policies, and more, marked the resilience of the Chinese financial system to recover and reform from the collapse of the Shanghai market in 1910. Therefore, switching the focus from the superiority of the core to the characteristics of the local market would be helpful to unfold the full picture of understudied financial bubbles in the periphery.

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