Fugitive or Orphan?
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Abstract

We explore a phenomenon observed during the Second Sino-Japanese War in which the value of the Japanese yen in Shanghai fell below the official rate. Shanghai provided a parallel market in which yen could be traded indirectly against British pounds through the intermediation of the Chinese yuan. The implied yen–pound rate was broadly approximated by purchasing power parity (PPP) before a significant divergence from PPP emerged in favour of the pound. This likely reflected negative news that signalled, among other things, a prospective withdrawal of Japanese yen as occupation money, which meant that the parallel market would close.

Keywords: China during the Second Sino-Japanese War; parallel foreign exchange market; occupation currency; Japanese occupation currency in China; Sino-Japanese War

JEL classification codes: F31, F33, E42, N25

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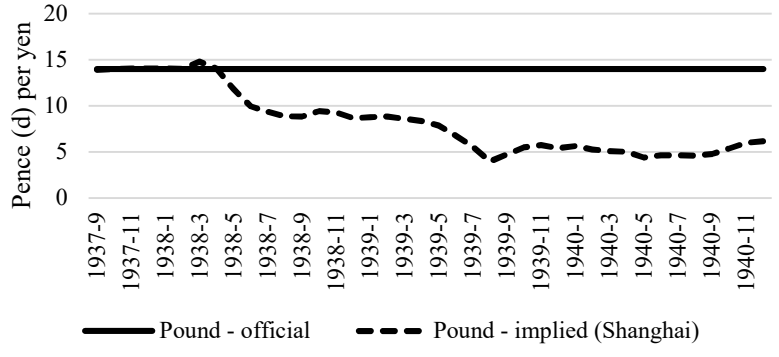
I. INTRODUCTION

This paper revisits the phenomenon observed in the early months of the Second Sino-Japanese War (July 1937–August 1945), in which the value of the Japanese yen (JP¥), used by the Japanese military as occupation currency, fell below its official value against the British pound (Figure 1), to which it was officially pegged at 1 shilling 2 pence (or 14 pence) sterling (abbreviated as 14d hereafter). In Shanghai, there was no market in which yen could be exchanged directly for pounds, but there was a market in which yen and Chinese national yuan (CNY) were traded, allowing the holders of yen to obtain pounds by first obtaining yuan. In May 1938, the yen's "implied" rate (obtained from triangular arbitrage) fell below the official rate. This continued until December 1939, when the Japanese yen was entirely withdrawn and replaced by the military yen as occupation currency.

Figure 1. The Japanese Yen's Exchange Rates against the British Pound, September 1937–December 1940 (Monthly averages)

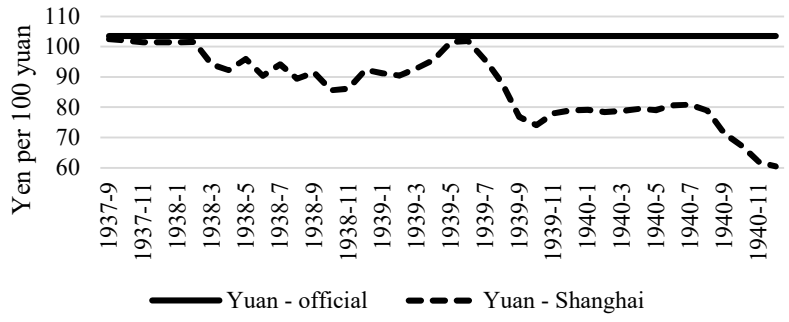


Notes: British pence (d) per JP¥; a fall in value indicates a depreciation of the Japanese yen; Japanese yen means Bank of Japan yen through November 1939 and military yen from December 1939; the yen's implied rate against the pound is a triangular arbitrage rate derived from the CNY/pound rate and the yen's cash rate against the CNY in Shanghai.
Source: China Expeditionary Army General Headquarters (SJGS: V8F61).

This phenomenon was captured by the term "Shanghai yen," which also connotated the depreciated yen's adverse consequences for Japan's military campaign. The term had dual references. First, the "implied" value of the yen against the British pound remained below the official rate from May 1938 to December 1939 (see Figure 1). This was a sustained phenomenon. Second, in May 1939, the yen depreciated sharply against the Chinese national

yuan and stayed close to par (Figure 2). Though not apparent in monthly average data, the value of the yen was more depreciated than the official rate not only against the pound but also against the yuan for about two weeks from late May to early June.[1] This intense phase of the phenomenon was temporary, observed during the brief period of May–August 1939. This paper addresses the broader phenomenon, though the statistical analysis of daily data is narrowly focused on the phenomenon's intense phase.

Figure 2. The Japanese Yen's Exchange Rates against the Chinese National Yuan, September 1937–December 1940 (Monthly averages)



Notes: JP¥ per CNY100; a fall in value indicates an appreciation of the Japanese yen; Japanese yen means Bank of Japan yen through November 1939 and military yen from December 1939.
Source: China Expeditionary Army General Headquarters (SJGS: V8F61).

Alternative arguments were offered. One view held that, because the Shanghai yen was "orphaned" from domestic government support, its price was determined entirely by forces specific to the Shanghai market (Hunsburger 1938, p. 257). The other view held that, given the shortage of civilian goods in Japan, the Shanghai yen was kept low by the flight of capital driven by "the object of acquiring merchandise" in China.[2] For convenience, one may call the first argument the "orphan" theory and the second the "fugitive" theory (emphasising the illicit nature of the smuggled yen). The paper, without dismissing either argument,

[1] This phenomenon is discussed in Section III, where an accompanying figure (Figure 6) depicts how, from 20 May to 7 June, the yen stayed near or above (that is, more depreciated than) the official rate against the Chinese yuan.

[2] *Finance & Commerce*, 31 May 1939. This article attributes the view to Eduard Kann, an Austrian banker based in China and frequent contributor to the periodical.

approaches the Shanghai yen as a parallel currency incidental to the tightening of domestic exchange and trade controls, a topic about which a large literature has emerged since the 1980s (Agénor, 1992). We use the adjective "parallel" instead of "black" because, while the market was informal, it was condoned by the military. The Japanese yen, to function as occupation money, needed a place where it could be exchanged for national yuan. A parallel market refers to a variety of multiple exchange rate systems, both offshore and onshore, and lawful and illicit (Kiguel & O'Connell, 1995).

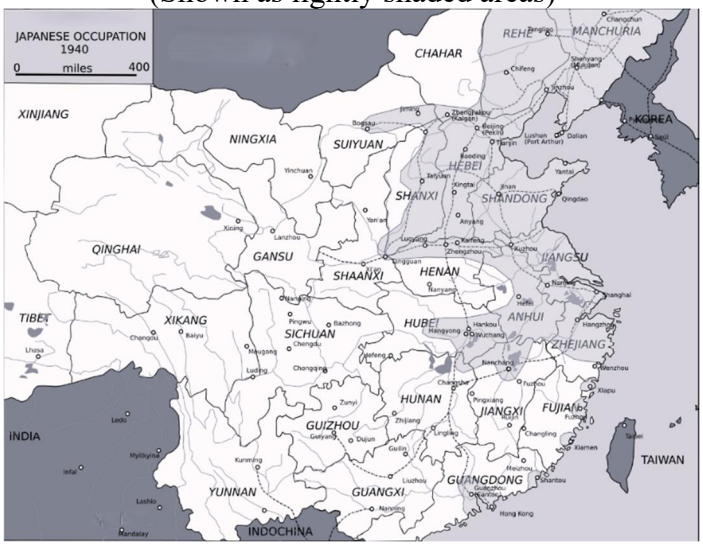
The rest of this paper is organised as follows. Section II summarises the broader currency scene of Central and North China during the early days of the Second Sino-Japanese War. Sections III and IV discuss, respectively, how the phenomenon of the Shanghai yen evolved and how the Japanese authorities addressed the adverse consequences resulting from the emergence of a parallel, depreciated yen. Section V reviews the evolution of exchange, trade, and price controls in Japan. Section VI performs statistical analyses of daily and monthly data to identify the nature of the Japanese yen's cash and implied exchange rates in Shanghai. Finally, Section VII presents a conclusion.

II. JAPANESE OCCUPATION MONEY IN CENTRAL AND NORTH CHINA

Japan divided occupied China into four domains and administered them separately (Figure 3): (i) Manchuria; (ii) the Inner Mongolia border region, for which it invented the name Mengkiang (Mengjiang); (iii) North China; and (iv) Central and South China. Japan's control of Manchuria and Mengkiang was nearly complete. In Manchuria, it had earlier established the Central Bank of Manchuria in June 1932 to issue occupation money. Likewise, in Mengkiang, it established the Bank of Mengkiang in November 1937. The rest of China remained militarily contested. Japan's control of South China was limited to a few coastal areas. Japan established the United Reserve Bank of China in February 1938 as a

note-issuing institution for North China,[3] followed by the Central Reserve Bank of China for Central and South China in December 1940, over three years into the war.

Figure 3. China under Japanese Occupation, circa. 1940
(Shown as lightly shaded areas)



Source: Wikimedia Commons, licensed under the Creative Commons Attribution-ShareAlike 3.0 Unported license (https://commons.wikimedia.org/wiki/File:Japanese_Occupation_of_China_1940.svg). Desaturated. Some geographical names have been removed from the original.

Two aspects of the historical background bear emphasis. First, as just noted, Central China was a militarily contested area, as was North China, though to a lesser extent. Japan's lack of total control in Central China was exacerbated by the presence of a large International Settlement in Shanghai, where foreign nationals enjoyed extraterritorial privileges. The Japanese military captured the International Settlement only after Japan formally declared war on the Allied powers in December 1941. In the meantime, legal-tender notes, known as

[3] The English name used in the first printing of banknotes was the *Federal* Reserve Bank of China. The English word federal is a mistranslation of the Chinese word *lianhe* (*lienho*; *rengō* in Japanese reading), which can only mean union or alliance. There was nothing federal about the bank's constitution or its sponsoring political entity. That federal was a mistranslation was known in China's foreign community. The 18 January 1939 issue of the *Finance & Commerce*, a weekly periodical published in Shanghai, ridiculed the mistranslation as "symbolical of the rather slap-dash way in which" the bank was established (p. 46). The negative reaction from the foreign community may explain why the English name was removed from the second printing of banknotes. The notes bearing the English name were almost entirely withdrawn from circulation within five years (URB, 1944). In order not to perpetuate the error, we follow the established practice of rendering *lianhe* as united, e.g., the United Kingdom (*Lianhe Wangguo*) or the United Nations (*Lianhe Guo*).

fa-pi (*fa-bi*), issued by four government banks reigned supreme in and around Shanghai under foreign patronage, about which Japan could do little (Kuwano, 1965; Ji, 2003).

Second, Japan used general-purpose banknotes issued by the Bank of Japan and the Bank of Chosen, the colonial bank for Korea, as occupation money. The general practice of a belligerent during the war was to use specially designed military scrip distinct in appearance from the banknotes used at home. The belligerent state typically exercised sufficient control over the area to declare such military currency as legal tender. For example, the United States (US) used a "brown-seal dollar" (on which the treasury seal was printed in brown) in the Pacific after driving out the Japanese (Lester, 1944), a "yellow-seal dollar" in North Africa (Rundell, 1961), and local currency–denominated "Allied Military Currency" notes in Italy, Germany, Korea, and Okinawa (Kemmerer & Beattie, 1944; Takagi et al., 2004). Such was not the practice the Japanese military followed in Central and North China, initially.

The early understanding of the Shanghai yen – that it was determined by the supply of and demand for yen – was heavily influenced by the influx of Chosen yen (CH¥) notes from North China, where their limited public acceptance created a discount against the *fa-pi*. The national yuan's official rate of 1 shilling 2½ pence sterling (14½d) meant that its parity with the Chosen yen (fixed at par with the Japanese yen) was approximately CNY100=CH¥103.6. In reality, the Chosen yen traded at a discount, e.g., CNY100=CH¥140.8 in August 1937 (Imamura, 1939). Because the Japanese yen traded at close to par with the national yuan in Central China (see Figure 2), the holders of Chosen notes took them to Shanghai, where they could be exchanged for Japanese yen notes at par. Arbitrage was completed by exchanging the Japanese yen for *fa-pi* notes and taking them back to North China.

The influx of Chosen notes added to the stock of yen notes in Central China. The escalating military tension, followed by a stalemate, brought a large influx of Japanese yen notes, with the arrival of civilians along with investments. Japan's Foreign Exchange Control

Law permitted each traveller to carry 1,000 yen in banknotes and to remit another 1,000 yen through bank transfers.[4] From January to April 1938, nearly 28,000 persons arrived in Shanghai from Japan (Tsuchiya, 1939), suggesting that, during these four months alone, up to 28 million yen was physically brought into Shanghai and another 28 million yen through bank transfers, excluding any amount smuggled out of Japan or the amount legitimately brought from Japan by the military or civilian firms planning to do business in China.

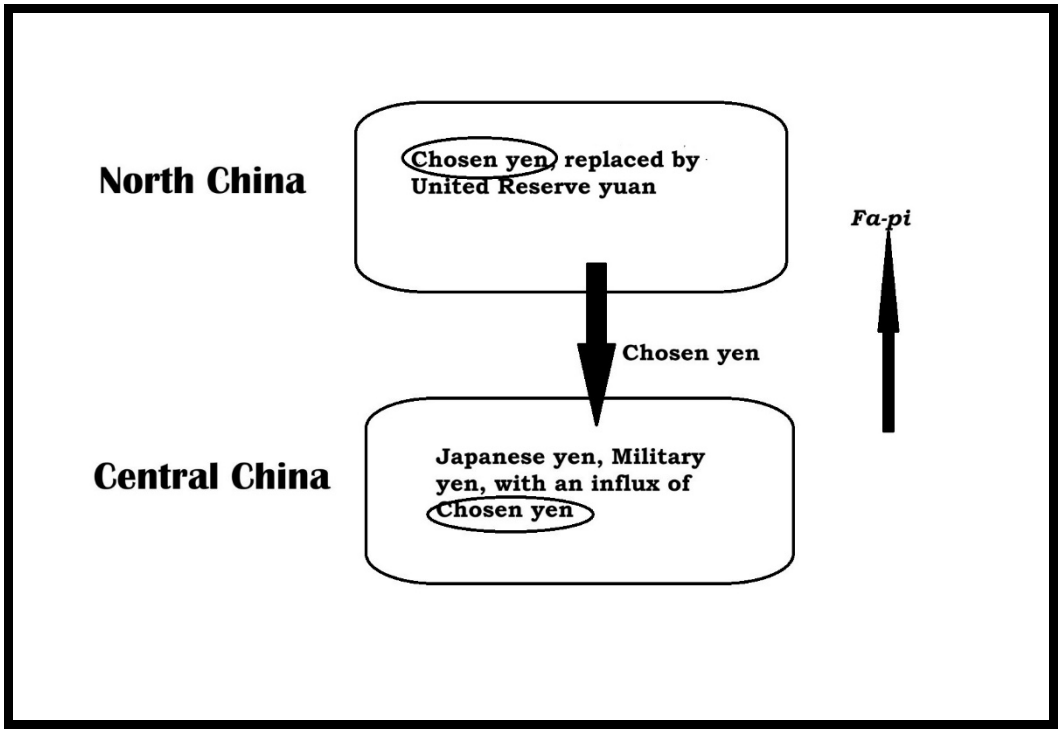
Photograph 1. In this new military scrip issued after August 1938, the characters denoting "Bank of Japan" are struck out by a red line in two places. It was identical to a Bank of Japan note in every other respect. Original in author's possession.

On 22 October 1937, Japan belatedly decided to use specially designed military scrip in Central and South China. The first batch of such military notes arrived with Japanese troops landing on Hangzhou Bay on 5 November. These notes were identical to those used during the Russo-Japanese War. Vertically long, poorly designed, and printed on poor-quality paper, they were not well received by the Chinese public. In August 1938, the government decided to repurpose Bank of Japan notes as military scrip to be used in the interior by placing an overprint with large red characters denoting "Great Japanese Empire military payment certificate" (Photograph 1). This was done to benefit from the Chinese public's greater familiarity with Bank of Japan notes. This act of striking the characters "Bank of

[4] SJGS: V4F12, F22, F24.

Japan note" was instantly criticised as undermining the confidence in Japan's central bank notes. Within a month, the characters "Great Japanese Empire military payment certificate" were printed anew in place of "Bank of Japan note" (Iwatake, 1990).

Figure 4. Japanese Occupation Currencies in Central and North China, 1937–1939



Japanese yen notes remained as the dominant occupation currency, with military yen (ML¥) notes playing a subsidiary role. Military notes were used exclusively in the interior along the Yangtze River and were routinely brought by merchants to Japanese banks in Shanghai, where they could be exchanged for Japanese yen notes at par (Tsuchiya, 1939).[5] These, along with Chosen notes from North China, constituted the expanding supply of Japanese occupation money in Central China (Figure 4). They were substitutable for each other as long as Shanghai-based Japanese banks honoured the official parities of JP¥1=ML¥1=CH¥1. The banks initially quoted the exchange rate of around CNY100=JP¥101.5 (Iwatake, 1990), which allowed the sellers of yen to obtain pounds at

[5] YSGMFD: R0866, Bank of Japan, 31 May 1939.

close to the official rate. The Japanese government soon recognised that this was creating the risk of losing a large amount of foreign exchange. In response, from 18 May 1938, Japanese banks were instructed to stop selling *fa-pi* in exchange for Bank of Japan notes.[6]

Understandably, we cannot ascertain the exact amount of yen currency circulating in wartime China at that time. Japan's China Expeditionary Army, for example, estimated the amount of yen brought into Central China through October 1938 to be 250 million yen, including: 130 million yen as bank transfers, 67 million yen in notes carried by the military (of which 31 million yen was in military notes), and about 50 million yen in Chosen notes from North China.[7] The Yokohama Specie Bank, on the other hand, estimated the stock of yen notes at the end of March 1939 to be 35 million yen, with another 73.7 million yen held as deposits at Japanese banks.[8] Of the 35 million yen, 25 million was held in the interior, much of which would likely be brought to Shanghai to be exchanged for *fa-pi*. About 80 percent of the remainder was held by Japanese banks, suggesting that a good portion of the notes in their vaults were the counterpart of the *fa-pi* notes that had been paid out.

If we suppose, as a working assumption, that the balance of yen notes and deposits in Central China in early 1939 was about ¥300 million, it was at most 8–11 percent of total outstanding Bank of Japan notes and 11–17 percent of total outstanding *fa-pi* notes (Table 1). It was a significant amount, to be sure, similar in magnitude to the balance of banknotes in Korea, North China, or Manchuria, and far exceeding the balance in Mengkiang. Its *marginal* impact on the Chinese economy, however, should not be exaggerated. Free China's banking sector held CNY4,153 and 6,059 million in deposits, respectively, at the end of 1938 and 1939 and extended CNY4,613 million in loans from July 1938 through December 1939

[6] SJGS: V4F10.

[7] SJGS: V4F10.

[8] YSGC: R0866.

(Young, 1965). The economy's largely agrarian orientation shielded a large segment of the population from the vicissitudes of industrial activity. More importantly, China was in the midst of an invasion by foreign troops. The material damage, the dislocation of economic activity, and the collapse of tax revenue, among other things, were far more important determinants of China's macroeconomic performance.

Table 1. Outstanding Banknotes in Japan, Korea, and Free and Occupied China, 1938 and 1939 (Millions of Japanese yen equivalents at official conversion rates; millions of national yuan in parentheses)

End of:	Bank of Japan yen	Bank of Chosen yen	Occupied China			Chinese national yuan (*fa-pi*)
			United Reserve Bank yuan	Central Bank of Manchuria yuan	Bank of Mengkiang yuan	
June 1938	2,074	254	N.A.	275	18	1,789 (1,727)
December 1938	2,755	322	162	426	36	2,387 (2,305)
June 1939	2,523	285	264	388	32	2,796 (2,700)
December 1939	3,679	444	458	624	60	4,440 (4,287)

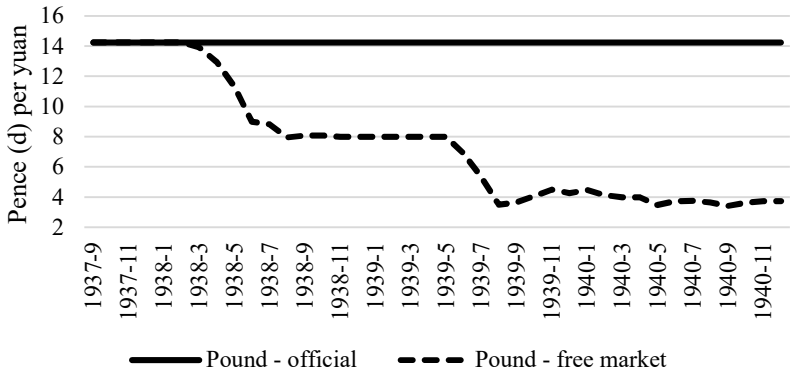
Note: N.A.=not available.
Sources: MDOS (1940), p. 65; Young (1965), p. 363; CGSKK (1987), pp. 526–27; MCGSKK (1988), p. 303; Shibata (1999), pp. 244–45, 290; BOJ, *Historical statistics*.

III. THE EVOLUTION OF THE SHANGHAI YEN

The Shanghai yen would not have emerged if Japanese banks had continued to exchange Japanese yen for national yuan at close to the official parity *and* Nationalist China continued to peg the yuan to the pound at close to the official rate. Despite the turbulence caused by the outbreak of an all-out military conflict, Nationalist China soon regained control of Shanghai's large foreign exchange market. This was done by utilising the foreign exchange reserves replenished by periodic sales of silver to the United States (King, 1983). The policy of defending the rate of 14½d became untenable, however, when the Beijing-based United Reserve Bank opened for business on 10 March 1938. On the next day, the holders of *fa-pi* were told to surrender them for United Reserve (UR) notes within 3 months

for Southern Notes and within 12 months for Northern Notes, prompting an exodus of *fa-pi* into Central China.[9]

Figure 5. The Chinese National Yuan's Exchange Rates against the British Pound in Shanghai, September 1937–December 1940 (Monthly averages)



Note: British pence (d) per CNY; a fall in value indicates a depreciation of the Chinese national yuan.
Source: China Expeditionary Army General Headquarters (SJGS: V8F61).

The influx of *fa-pi* notes into Central China triggered by the mandatory currency exchange was estimated to be CNY20–30 million (URB, 1940). On 14 March 1938, Nationalist China ceased to intervene in the market to prevent the Japanese military from exchanging the *fa-pi* brought from North China to obtain foreign currencies at the official rate (King, 1979). The Nationalists also restricted the withdrawal of *fa-pi* deposits to pre-empt capital flight and rationed foreign exchange at the official rate. The national yuan fell precipitously against the pound and reached 8d in August (Figure 5). Foreign exchange was rationed at the official rate, but the market share of official transactions, initially around 60 percent, declined drastically after May 1938. The share was only about 2 percent in late July

[9] Each *fa-pi* note had the name of the issuing branch inscribed, a practice carried over from the silver-standard era when banks limited the issue of their banknotes to the amount of silver available in each area (Young, 1965). Northern Notes were banknotes stamped with Qingdao, Tianjin, or Shandong. All other banknotes issued by the Banks of China and Communications, as well as the Central Bank of China, were designated as Southern Notes. Notes issued by the Farmer's Bank, considered too closely connected with the Nationalist regime, were ineligible for currency exchange.

and a mere 1 percent by October (MOF, 1939). No official allotment was made from July 1939 (Young, 1965). The national yuan's official exchange rate virtually ceased to exist.

The Shanghai yen emerged when Shanghai-based Japanese banks ceased to exchange yen for national yuan at close to the official rate. Even though the yuan fell against the yen at this time, the fall was not sufficient to keep the yen's implied rate against the pound at the official rate. For example, in June 1938, the national yuan depreciated to JP¥90.41 (per CNY100), but it needed to fall to JP¥57.14 if the yen's implied rate against the pound was to be kept at 14d. In the meantime, the establishment of the United Reserve Bank created another channel of arbitrage. Even though the UR yuan was declared legal tender in North China, Japan only controlled the strategic locations confined, at most, to Beijing, Qingdao, Tianjin, and several other urban areas (Lieu, 1939). In the vast rural areas, *fa-pi* notes circulated widely, and where UR notes also circulated, the *fa-pi* commanded a premium. Traders took *fa-pi* to the market to obtain UR notes at a discount, which they took to the United Reserve Bank to exchange at par for Chosen notes, to be taken to Shanghai.

When Japanese banks ceased to exchange Japanese yen for *fa-pi*, a cash market spontaneously emerged in Shanghai. The market comprised four brokers, over 60 small local banks (known as *qianzhuang*), and two Japanese-affiliated commercial banks, Hankou and Shanghai Banks. There were two centres of market activity, one around the intersection of Szechuan and Nanjing Roads in Hankou, and the other in the International Settlement where the two Japanese banks were headquartered. Daily trading volume ranged between JP¥200,000 and JP¥700,000, with an average of about JP¥400,000–500,000 (Tsuchiya, 1939). In November 1939, the International Settlement accounted for an estimated 60 percent of the total trading volume.[10] The principal sellers of yen were military vendors, traders based

[10] The Yokohama Specie Bank Shanghai Branch, 27 November 1939, YSGC: R0866.

in the interior, and cotton merchants, while the principal buyers were large Japanese trading companies and Shanghai-based textile manufacturers.[11]

The end of the mandatory currency exchange on 10 March 1939 caused the UR yuan to depreciate against the national yuan, as the market anticipated the emergence of a shortage of *fa-pi* needed to purchase goods in the interior.[12] In Tianjin, for example, the UR yuan depreciated from 102.4 (per CNY100) in August 1938 to 105.1 in March 1939 and reached the bottom of 134 on 2 May (Iwatake, 1990).[13] The incentive for arbitrage intensified. *Fa-pi* notes were exchanged in the market for UR notes, which were then exchanged at the United Reserve Bank for Chosen notes at par. In Central China, the large influx of Chosen notes caused their discount against the *fa-pi* to increase,[14] though the discount remained smaller than in Tianjin. The *fa-pi* obtained were exchanged for foreign currencies or shipped to North China, where they were exchanged for Chosen notes trading at a greater discount.[15] They could in turn be used to obtain Japanese yen or make payments to Japan.

The intensive phase of the Shanghai yen began in May 1939, when the depreciation of the yen became pronounced. The yen fell to 105 (per CNY100) on 20 May and hit the all-time low of 113 during midday trading on 23 May (Figure 6, where the average daily rate of 111 is shown).[16] While the large influx of Chosen notes increased the supply of yen, the demand for yen had been reduced by the suspension, beginning in mid-March, of the export

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[11] YSGC: R0866; SJGS: V4F23.

[12] YSGC: R0866, Ministry of Finance, 19 April 1939.

[13] The discount disappeared from July 1939 when the *fa-pi* depreciated against the pound sufficiently to fall below 5 pence sterling (see Figure 5).

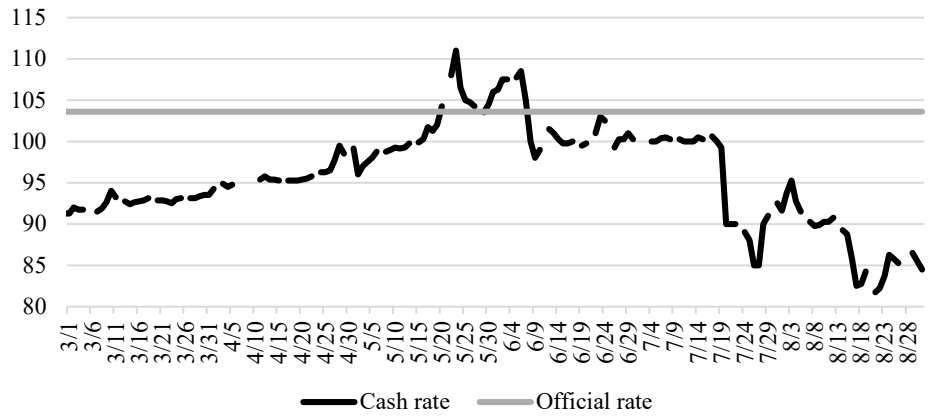
[14] For example, the Chosen yen was valued less than the Japanese yen by 4.0 yen per CNY100 on 10 March, 7.7 yen on 28 March, and 11.0 yen on 11 April. YSGC: R0866.

[15] For example, the chosen yen traded at 112.5 (per CNY100) in Shanghai on 18 April, but the UR yuan (officially fixed at par with the Chosen yen) traded at 116.0 in Tianjin on the same day. YSGC: R0866.

[16] SJGS: V4F21, 22.

of soybeans and soybean products by Manchuria to Central China (Iwatake, 1990).[17] This measure was part of Japan's broader policy, pursued from the previous June, of limiting exports to yen-bloc areas where it earned no foreign exchange (Miyashita, 1943).[18]

Figure 6. The Japanese Yen's Average Daily Exchange Rate against the *Fa-Pi* in Shanghai, 1 March–31 August 1939 (Yen per 100 national yuan)



Notes: The average daily rate for 1 April–31 July; the daily opening rate for 1 March–31 March and 1 August–31 August; a fall in value indicates an appreciation of the Japanese yen.
Source: China Expeditionary Army General Headquarters (SJGS: V4F21, 22); *Finance and Commerce*, 5 April and 13 September 1939.

IV. CONSEQUENCES AND RESPONSES

The emergence of the Shanghai yen meant that the yen now had two exchange rates – one in Japan and the other in Shanghai. The parallel exchange rates created opportunities for arbitrage. Payments to Japan were made by a depreciated yen in Shanghai. Japanese exports to third countries were first shipped to Shanghai before they were reexported. It was reported that Japanese goods purchased with Shanghai yen were being sold at discount prices in such distant places as Honduras and Syria.[19] Japanese exporters of goods to a third market under-invoiced their products to earn extra foreign exchange. This was done by issuing an invoice of, say, 1,000 yen for products valued at 1,100 yen, with the understanding that the remaining

[17] *Finance & Commerce*, 31 May 1939.

[18] *Finance & Commerce*, 15 February 1939.

[19] YSGC: R0866, YSB Head Office, 17 May 1939 (Honduras) and YSB Kobe Branch, 3 August 1939 (Syria).

100 yen would be sent in foreign exchange (converted at the official exchange rate) to Shanghai, where it was converted into yen at a depreciated exchange rate before being remitted to Japan (Tsuchiya, 1939). Japanese travellers taking Japanese ships abroad came to Shanghai to pay for the fare (Lieu, 1939).

Foreign currencies and gold bullion were smuggled out of Japan to purchase depreciated yen.[20] Criminal syndicates operated between Shanghai, Dalian, and ports in Japan. During the month of August 1938, 27 persons were arrested in Kobe for smuggling, including one American and two Britons. It was reported that a dollar could be obtained for JP¥4.50 (cf. the official rate of JP¥4.27) in the black market in Japan which, together with an even more depreciated yen in Shanghai, allowed the profit of one dollar to be made for each dollar. The ringleader, by the name of Joseph Bitker, earned a profit of at least JP¥250,000 and the ring netted JP¥1 million during the months of May and June alone.[21] As evidence of a strong incentive for smuggling, the Shanghai yen commanded a premium of 5–10 percent in black-market trading in Osaka (Tsuchiya ,1939). That is to say, it cost more in domestic yen to obtain the right to supposedly lower-valued yen in Shanghai.

There was a sizable repatriation of Japanese yen notes. Foreign travellers to Japan, as well as foreign students and missionaries in Japan, obtained yen in Shanghai. This explains why there was a surge in the number of foreign missionaries spending the summer of 1938 in the high-end resort town of Karuizawa (Tsuchiya, 1939). Part of the large influx of *fa-pi* notes into North China was used to purchase undervalued yen, which was then shipped to foreign countries from which remittances to Japan were made. Japanese yen notes, obtained in Shanghai and elsewhere in China, were showing up not only in Hong Kong and Singapore

[20] SJGS: V4F11.

[21] *Finance & Commerce*, 21 September 1938. The 12 October 1938 issue reported more arrests of foreign smugglers in Kobe.

but also in such distant places as Brazil, Hawaii, the Middle East, and the South Pacific, not to mention the financial centres of London and New York (Tsuchiya, 1939; Miyashita, 1943; Iwatake, 1990).

The Japanese authorities were alarmed by these developments, which meant that the yen had lost purchasing power as occupation money. Contemporary observers lamented the loss of foreign exchange this implied, for example, when Japanese exports were paid for by yen in Shanghai even though they were reexported to third countries. The *Finance & Commerce* reported on 7 September 1938 that traders reexporting Japanese goods from Shanghai to India or the South Seas earned profits of 20–30 percent from "exchange differences alone" and that the proceeds went "into the hands of the Chinese banks" to "strengthen the financial position of the Chiang Kai-shek Government" (p. 183).

The Japanese authorities, preoccupied with the establishment of the puppet regime and the reconstruction of Shanghai, took some time to respond decisively. Early decisions were couched in abstract language with no specificity, and any concrete decision was communicated to Japanese bank branches in Shanghai through their headquarters in Japan. It was only on 1 June 1938 that the Shanghai office of the ministry of finance met formally with the representatives of Shanghai-based Japanese banks (Iwatake, 1990). The series of measures the Japanese authorities in Shanghai and Tokyo implemented from May 1938 to close the channels of arbitrage can be grouped under three broad categories: (i) measures to limit the growth and circulation of yen notes in Central China; (ii) measures to limit the repatriation of Bank of Japan notes or their use for making payments to Japan; and (iii) market intervention to appreciate the yen's cash value against the national yuan.

First, on 18 May 1938, the Bank of Chosen limited the exchange of its own banknotes for Japanese yen notes to legitimate purposes only, while all other Japanese banks entirely

ceased to accept them for any purpose.[22] This action, designed to limit the influx of Chosen notes from North China, created a discount of 0.5–2.5 percent against Japanese yen notes in the black market (Iwatake, 1990).[23] In late August, Japanese banks, except under license, ceased to pay out 100-yen notes in order to suppress large-denomination transactions.[24] In October, the remittance limit for purposes other than living expenses was reduced from 1,000 to 100 yen, and travellers to China were required to obtain approval for carrying out 100-yen notes.[25] In June 1939, Japanese trading companies were required to obtain approval for the daily sale of more than 5,000 yen and to report trading in excess of 1,000 yen per day.[26] Effective 1 July, the maximum amount Japanese travellers to China could take out was reduced from 2,000 to 500 yen, including BOJ notes and bank transfers.[27]

Second, in June 1938, all banks, Japanese and foreign, were prohibited from issuing yen bills of exchange against Japanese imports.[28] This was done to prevent the use of Shanghai yen to pay for imports from Japan. In July, Japanese banks were prohibited from repatriating Bank of Japan notes to Japan (from 1 July 1939, this restriction was made to apply to all banknotes circulating abroad).[29] Effective 11 March 1939, the maximum amount Japanese nationals could remit to the rest of the yen bloc was reduced from 5,000 yen to 500 yen (non-Japanese nationals were entirely prohibited from doing so). From July, the maximum amount travellers returning to Japan could take out of China was set at 200 yen per

[22] SJGS: V4F12.

[23] See footnote 14 for how the discount increased following the end of the mandatory currency exchange in March 1939.

[24] SJGS: V4F12; YSGC: R0866, MOF Shanghai office, 24 August 1938.

[25] SJGS: V4F12.

[26] SJGS: V4F24.

[27] YSGC: R0866.

[28] SJGS: V4F12.

[29] SJGS: V4F12.

person (previously there was no limit). On 14 July, the payment for Japanese imports valued at more than 3,000 yen, as well as the issuance of a letter of credit for imports from Japan, became subject to approval from the Shanghai office of the ministry of finance.[30]

Finally, market intervention was attempted following the fall of the yen to an all-time low in May 1939. On 8 June, the Japanese authorities in Tokyo instructed the Yokohama Specie Bank's Shanghai Branch to intervene in support of the yen by utilising CNY5 million diverted from the customs revenue, with the initial aim of achieving par with the yuan (Tadai, 1983).[31] The cumulative value of sales and purchases from 12 June through the end of December amounted to JP¥707 million. In addition, the military purchased 331 million yen by utilising its own *fa-pi* funds (Iwatake, 1990). From 8 June, the national yuan started a trend depreciation, and the yen never fell below par from this time on (see Figure 2). How much of this outcome was attributable to the market intervention is difficult to evaluate, given other concurrent developments impacting the foreign exchange market.

In June, the Sino-British stabilisation fund, in operation since April 1939 to defend the national yuan,[32] came under attack and withdrew support on 18 July 1939 (Young, 1965; King, 1983). The trigger was a blockade by the Japanese military of Tianjin's foreign concessions, which began on 14 June over the refusal of the British to hand over the Chinese assassins who had murdered a Japanese collaborator (Tadai 1983). Furthermore, effective 17 July, the Japanese authorities expanded to all exports the coverage of the Centralised Foreign Exchange System, which had been established on 11 March to require the surrender of foreign exchange earnings from selected export items (Takagi, 2025). The southward exodus

[30] SJGS: V4F24.

[31] YSGC: R0866, 24 May 1939.

[32] The Sino-British fund of £10 million, with equal contributions from Chinese and British banks, took over the currency stabilization operations conducted by the Bank of China from June 1938 to April 1939.

of *fa-pi* notes began when this policy was announced on 6 July, which reportedly amounted to 50 million yuan. On 17 July, the Nationalist government ordered Shanghai-based banks to stop accepting Northern Notes (MOF, 1939). As a result of these developments, the *fa-pi* depreciated from around 6½d in early June to 3¼d by 11 August (see Figure 5).

These measures did not eliminate the influx or repatriation of Japanese yen notes. Short of unlimited market intervention, a permanent solution required the complete withdrawal of general-purpose notes as occupation money. From 1 November, military yen notes replaced Japanese yen notes throughout Central China except in Shanghai, where, given the large International Settlement, the exclusive use of military notes was held off for another year. From 17 June 1939, the authorities allowed only the military yen to be used for trade between Central China and other yen-bloc areas, including Japan, with its rate of exchange against the *fa-pi* determined in the market (BOJ, 1943). On 15 July, Japanese banks were required to obtain approval for paying out more than 500 yen in Bank of Japan notes; the limit was progressively reduced to 300 yen on 11 September and 50 yen on 2 October (SMR 1940). From 26 October, Japanese banks ceased altogether to pay out Bank of Japan notes.[33]

Photograph 2. Referred to as "the bird and dragon" note, the new military scrip that appeared in December 1939 had the appearance of a government payment certificate. The characters on top simply states: "The Government of the Great Japanese Empire." Original in author's possession.

[33] YSGC: R0866, YSB Shanghai Branch, 27 November 1939.

In May 1939, the military scrip was revamped. Instead of using a repurposed Bank of Japan note, the new note had an obverse displaying the drawing of an auspicious animal (which could be taken as a phoenix or a dragon), with the characters on top designating "Great Japanese Empire government military note." In July, there emerged spontaneously a cash market among *qianzhuang*, where Japanese military notes were exchanged for *fa-pi* (SMR, 1940). In the meantime, the military note was further refined by replacing the ambiguous animal on the observe explicitly with a phoenix and a dragon and by removing the characters "military note" on top (Photograph 2). Called "the bird and dragon" notes (Banyai, 1974, p. 50), the newly designed military notes began to circulate in December (Iwatake, 1990), coinciding with the total withdrawal of Bank of Japan notes from Shanghai on 1 December 1939. The holders of Japanese yen notes were given a month to exchange them for military notes.

V. TIGHTENING DOMESTIC CONTROLS

The alternative explanations of the Shanghai yen ("orphan" vs. "fugitive") can more usefully be restated in terms of "liquidity" and "intrinsic value." That liquidity played a role in the pricing of the Shanghai yen is beyond dispute. According to Japan's China Expeditionary Army, the price of the yen systematically fell each time a ship arrived in Shanghai from Kwantung (Dalian), North China, or Japan.[34] The 15 June 1938 issue of the *Finance & Commerce* reported that the cash market rate, which was JP¥82 (per CNY100) on 11 June, jumped to JP¥89 on 13 June when a steamer arrived from Qingdao. The periodical's 26 July 1939 issue reported that, on 21 July 1939, the cash rate opened below JP¥71.4 but closed at JP¥90.9. These observations suggest the liquidity-driven volatility characteristic of

[34] SJGS: V4F10.

a thin market. Yet, the question remains whether there was some "equilibrium" value toward which the liquidity-driven daily or intra-daily rate was reverting.

In the absence of state intervention, a foreign exchange market is fundamentally an asset market, where intrinsic value anchors the pricing of the traded instrument. Shanghai's Japanese yen–national yuan market was an informal market almost certainly free of state intervention. A shipload of passengers carrying Japanese yen notes would need to exchange some of them for *fa-pi* upon arrival to make essential purchases, which would exert a downward liquidity effect on the price of the yen. At the same time, the newly arrived passengers might keep the rest if they view the price of the yen to be below the intrinsic value, while the buyers of yen with a similar view might increase the supply of *fa-pi*. Both liquidity and intrinsic value are important in an asset market. The question is what the intrinsic value of the yen was.

In the late 1930s, when private foreign investment was severely restricted, the yen's intrinsic value, for the most part, was likely determined by its purchasing power in the goods market. The fact that the yen traded at a discount in Shanghai (relative to the official rate) implies that its domestic value was artificially elevated. Shanghai provided a parallel market for the yen to circumvent the exchange and trade controls at home. A parallel market is more likely to emerge if its perceived benefits are larger and its costs smaller (Nowak, 1984). The benefits increase with the tightening of controls, while the costs become smaller if the state – explicitly or implicitly – sanctions the existence of such a market. The military occupation of China, and the restoration of relative stability, meant a significant reduction in the costs of engaging in parallel-market activity. Japanese civilians could now openly travel to China to engage in such activity, whereas the costs of doing so in Japan were likely nearly prohibitively high. A black market for foreign exchange did exist in Japan, but such black-market activity was clandestine and limited in scale.

The benefits of such activity were increasing as Japan progressively tightened exchange and trade controls. Japan's first legal framework of exchange control was the Capital Flight Prevention Law of July 1932, but its purpose was not to control financial flows as such but to keep domestic credits at home as monetary conditions were eased (BOJ, 1948; MOF, 1963). The law made a liberal allowance for the payment for imports, insurance premiums, shipping, transportation, interest, and other lawful transactions. This was replaced in May 1933 by the Foreign Exchange Control Law, which potentially gave the government unlimited authority to regulate all foreign exchange transactions. Yet, the authorities did not utilise the full extent of the law by focusing, instead, on curtailing speculative transactions.

It was around this time that the yen was virtually pegged to the pound sterling. Following the US decision to let the dollar float, on 20 April 1933, the Japanese government switched the reference currency from the dollar to the pound, to which the yen was allowed to float narrowly between 14½d and $14\frac{1}{16}$d (BOJ, 1984). On 22 October 1934, the authorities went further by pegging the yen to the pound firmly at 14d. The aftermath of a failed coup in February 1936, which signalled the removal of moderate elements in Japanese politics, caused the yen to depreciate temporarily beyond the reference rate of 14d on several occasions. From November 1936, the Japanese authorities progressively limited the freedom with which Japan-based banks could conduct foreign exchange transactions (BOT, 1982), including the August 1938 agreement with the central bank that they would "voluntarily" surrender their holdings of dollar and pounds funds over a designated limit (BOJ, 1942).

Japan initially used exchange control as the administratively simpler way of exercising trade control. Thus, Japan's first trade control measure, the Import Exchange Control Order, was issued in January 1937 under the authority of the Foreign Exchange Control Law. The order subjected to approval all legitimate purchases of foreign exchange by importers. Massive speculative imports that followed the outbreak of the Sino-Japanese War,

however, rendered this order ineffective, compelling the authorities to deploy direct control measures. The outcome was the Law Relating to Extraordinary Measures for Export and Import Control of September 1937, which gave the government authority to curtail or prohibit not only the import and export, but also the production, distribution, and consumption, of any good (MOF, 1963). From October 1937, the government issued a series of directives detailing how the law should apply to different goods (BOJ, 1848).

The allocation of foreign exchange was prioritised for firms producing goods for export. When the policy of limiting imports to conserve foreign exchange was found to be adversely impacting the capacity of industry to produce goods for export (Hara, 1972), in June 1938, the government expanded the scope of linked trade, which had been introduced on a limited scale in October 1937 (Ishihara, 2021). The idea of linked trade was to make a preferential allocation of foreign exchange to the import of raw materials required for designated export items. By January 1939, the number of export items under the system was increased to 12, which collectively entailed the linked import of some 20 items as raw materials (MOF, 1963).

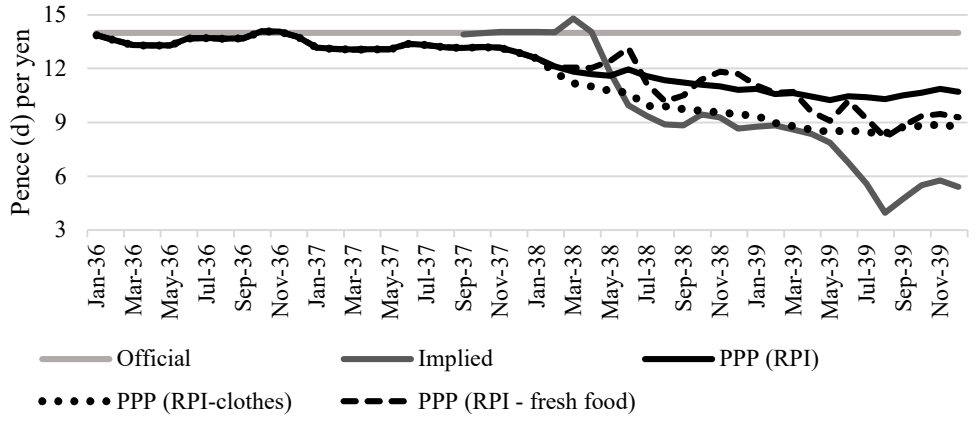
The immediate impact of the Export and Import Control Law was to raise the prices of consumer goods, the import of which was either curtailed severely or prohibited outright. The upward price pressure on consumer goods was exacerbated by the strategic reallocation of textile products from domestic consumption to export in order to earn foreign exchange. In November 1937, the government set the maximum prices for seed cotton and cotton fabrics, which was followed by the introduction of an allocation system for domestic-use cotton fabrics in March 1938. In July 1938, it issued the Regulation on the Control of the Sales Prices of Goods, which, departing from the previous reliance on voluntary industry cooperation, authorised the government to set the mandatory maximum prices for designated commodities (which numbered 29 items at the end of August).

In August 1938, burgeoning black-market activity for consumer goods prompted the government to institute a nationwide system of surveillance ("economic police") staffed with some 1,500 agents who would arrest and prosecute profit gougers and profiteers (Ishihara, 2020). In September 1939, the outbreak of hostilities in Europe led the government to introduce sweeping price controls. On 15 September, it announced that all prices would be frozen as of 18 September. This was followed, on 18 October, by the promulgation of the Price Control Order under the authority of the National General Mobilisation Law of May 1938. With effect from 20 October, the control order fixed the prices of all goods at the 18 September 1939 level, subject to future adjustments by a government commission based on production costs. Fruits and vegetables were excluded from coverage until August 1940 and fresh fishery products until September 1940 (Ishihara, 2020).

VI. THE PRICING OF THE SHANGHAI YEN

With the progressive tightening of exchange, trade, and price controls, as described above, the Japanese yen became overvalued at home. To see this, we estimate the yen's purchasing power parity (PPP) rate against the British pound, assuming that the yen–pound rate was in line with PPP in April 1933, at which time the yen presumably had gone through 15 months of price discovery to find the right reference value against the pound. Using the monthly average data for retail price indices (RPIs), we find the PPP rate, after remaining close to or above the official rate, fell considerably below 14d from late 1937 or early 1938 (Figure 7, solid black line). This is consistent with the timing of the tightening of domestic controls. We obtain a virtually identical result even if we use the wholesale price indices (WPIs). The movements of the RPIs and the WPIs, relative to the base of April 1933, were similar in both countries.

Figure 7. The Japanese Yen's Purchasing Power Parity Rate against the British Pound vs. the Official and Implied Rates in Shanghai, January 1936–December 1939



Note: The purchasing power parity (PPP) rate is estimated by assuming that PPP held in April 1933 (when the yen was pegged at or around 14d) and by using the retail price indices (RPIs); the dotted lines assume that the Japanese RPI moved with the cost-of-living indices for clothes and fresh food; the yen's implied rate against the pound is mechanically derived from the CNY/pound rate and the yen's cash rate against the CNY in Shanghai.
Source: Author's estimates based on League of Nations (1934–41); ZSDRK (1938), p. 3; BOJ (1940), p. 105.

The deviation of the implied rate (see Figure 7, solid dark grey line) from PPP from May 1938 signals the emergence of a parallel market. It is well known in the literature (e.g., Nowak, 1984) that a parallel rate presupposes the existence of an excess demand for foreign currency at the official rate, which means that the parallel rate is more depreciated than the market-clearing rate. Even though the implied ("market") rate remains below the PPP ("market-clearing") rate, however, they move in parallel with each other. Japan's RPI, which was based on the controlled prices (ZSDRK, 1938), likely understated the actual price level faced by the consumers. If we replace the RPI with the cost-of-living indices (CLIs) for fresh food or clothes from January 1938, their co-movement becomes tighter and longer-lasting.[35] The implied rate only began to diverge from PPP (see Figure 7, two dotted lines) in May 1939, ignoring the inherent volatility of fresh food prices.

[35] No black-market price index is available from this period. The CLIs for fresh food (with the weight of 7.731 percent in the aggregate index) and clothes (14.188 percent) may be thus considered as a proxy for the black-market price index. Fresh food was free of price control until 1940, and clothes typified the consumer goods whose prices saw a sharp increase, as imports were curtailed and domestic products were diverted to export.

A unique feature of the Shanghai market was that the yen was traded, not directly against the pound, but against the national yuan as a vehicle currency (Black, 1991). The domestic holders of yen, in order to obtain pounds, first needed to obtain yuan, that is:

$$(B/Y) = (B/C) \times (C/Y) \quad (1)$$

where (B/Y) is the price of the pound in terms of Japanese yen, (B/C) the price of the pound in terms of national yuan, and (C/Y) the price of the national yuan in terms of Japanese yen, with B=units of pence sterling, Y=units of Japanese yen, and C=units of national yuan. From equation (1), we surmise that the Shanghai yen, or the price of the Japanese yen per Chinese national yuan, was determined as follows:

$$(Y/C)_t = (Y/B)_t \times (B/C)_t + \varepsilon_t \quad (2)$$

where ε is a random shock affecting the Shanghai market and t is a time subscript.

An important purpose of the Shanghai market was to allow the holders of yen to obtain *fa-pi* to make essential purchases. Young (1963), wartime financial advisor to the Nationalist government, states that, given the large spending needs within China, "Japan was [not] using the free market to raid China's reserves" (p. 180). Yet, an analysis of the daily yen–yuan rate suggests that it was typically responding to the yen– and yuan–pound rates (Table 2). The respective pound rates Granger-caused the yen–yuan rate at the 1 percent level of significance, but the reverse was not true. Roughly stated, a change in the respective pound rates typically preceded a change in the yen–yuan rate (though the possibility of the pound exchange rates responding to prospective developments in Japan or China is not ruled out). The largely vehicle-currency role of the national yuan is confirmed. That there was arbitrage across the three exchange rates is intimated by Young (1963)'s observation that, during the period 1938–1941, Japanese banks operated on both sides of the free market.

Table 2. Granger Causality Tests of Daily Bilateral Exchange Rates in Shanghai, 1 March–31 August 1939 [a]

Direction of causality [b]	Number of observations	Lag length [c]	Chi-square [d]	Probability
JP¥/CNY ← JPY/GBP	146	3	21.74**	0.000
JP¥/CNY → JPY/GBP	146	3	4.61	0.203
JP¥/CNY ← CNY/GBP	146	3	21.74**	0.000
JP¥/CNY → CNY/GBP	146	3	2.67	0.445
JP¥/GBP ← CNY/GBP	146	3	4.61	0.203
JP¥/GBP → CNY/GBP	146	3	2.67	0.445

Notes: [a] JP¥=Japanese yen; CNY=Chinese national yuan; GBP=British pound; all variables are log-differenced to ensure stationarity; [b] the JP¥/GBR rate is derived from the CNY/GBP and the JP¥/CNY rate; [c] selected by the Akaike information criterion (AIC); [d] ** indicates that the null of no causality is rejected at the 1% level.
Source: Author's estimates based on China Expeditionary Army General Headquarters (SJGS: V4F21, 22); *Finance and Commerce*, 5 April and 13 September 1939.

Table 3. Statistical Properties of the Yen's Daily Exchange Rate Changes against the Chinese National Yuan and the US Dollar, Shanghai (cash) in 1939 and Tokyo in 1932 (Numbers in brackets for changes in absolute value, unless otherwise noted) [a]

Variable/time period	(1) The yen's cash rate against the *fa-pi* (Shanghai), 1 March–31 August 1939	The yen's exchange rate against the US dollar (Tokyo)		
		(2) 1 January–30 June 1932	(3) 1 July–31 December 1932	(4) 1 January–31 December 1932
(1) Number of observations	150	139	148	288
(2) Mean	-0.05 [0.93]	-0.18 [1.03]	-0.19 [0.99]	-0.18 [1.01]
(3) Standard deviation	1.58 [1.28]	1.54 [1.16]	1.42 [1.03]	1.48 [1.09]
(4) Skewness	-1.73 [3.29]	0.15 [2.08]	-0.38 [1.70]	-0.09 [1.88]
(5) Kurtosis	10.65 [16.12]	3.53 [4.62]	2.00 [2.91]	2.82 [3.99]
(6) Maximum-minimum	15.50 [9.78]	11.64 [6.20]	9.14 [4.93]	11.64 [6.20]
(7) ADF statistic (probability) [lag length] [b]	-8.717** (0.000) [1]	-13.357** (0.000) [0]	-4.516** (0.000) [3]	-7.230** (0.000) [3]

Notes: [a] Daily logarithmic difference expressed in basis points, roughly interpreted as a percent change; a positive value represents a depreciation of the yen for the cash rate against the *fa-pi* and an appreciation for the exchange rate against the US dollar; [b] ADF=Augmented Dickey-Fuller test; lag length selected by the Akaike information criterion (AIC); ** indicates that the statistic is significant at the 1% level (i.e., the null of a unit room is rejected).
Source: Author's estimates based on daily data from China Expeditionary Army General Headquarters (SJGS: V4F21, 22); *Finance & Commerce*, 5 April and 13 September 1939; and *Chūgai Shōgyō Shinpō*, Tokyo, daily issues.

That the Shanghai market had the characteristic of a well-behaved asset market is indicated by the zero-mean distribution of daily logarithmic differences in the yen–yuan exchange rate and the Augmented Dickey-Fuller test that rejects the null of a unit root (Table 3). This suggests that the price incorporated the arrival of new information within a day. For

the period March–August 1939, the kurtosis was 10.7, which may be compared to the kurtosis of 3.5 and 2.0 for the daily yen–US dollar rate in Tokyo for the two non-overlapping six-month periods of 1932, the only full calendar year during the interwar period when the yen was a floating currency. A large positive kurtosis is a well-known characteristic of high-frequency changes in most asset prices (Takagi, 1988), but the much larger kurtosis of the yen–yuan rate suggests that it was subjected to a great number of extreme values suggestive of a volatile market.

Table 4. Parallel- or Black-Market Premiums in Japan and Selected Countries (In percent) [a]

Country (time period)	Median value (%) [b]	Maximum value (%)
Japan/occupied China (September 1937–April 1938)	-0.3	0.7
Japan/occupied China (June 1938–April 1939)	46.0	51.6
Japan/occupied China June (1939–November 1939)	92.6	125.8
Japan/Hong Kong (1955) [c]	9.3–21.2	
Mexico (1980–1989)	17.7	66.0
Brazil (1980–1989)	43.1	173.0
Venezuela (1980–1989)	75.2	213.0
Bolivia (1980–1989)	17.6	293.1
Zambia (1970–1979)	102.5	361.9
Ghana (1980–1989)	142.0	4,263.7

Notes: [a] The exchange rate premium over the official rate for the reference currency; for Japan, the reference currency is the British pound for 1937–1939 and the US dollar for 1955; [b] for countries other than Japan, the median of end-year values; for Japan/occupied China, the median of monthly average values; [c] the maximum and minimum values.
Sources: Figure 1; Kiguel & O'Connell (1995), p. 23; Okazaki & Korenaga (1999), p. 316.

A parallel-market premium of the British pound over the official rate emerged in May 1938 and averaged 46.0 percent from June 1938 to April 1939 (Table 4). The premium then jumped in May 1939 to average 92.6 percent from June to November 1939, with a peak monthly average of 125.8 percent. These are large compared to the US dollar premium of 9.3–21.2 percent over the official yen–dollar rate in 1955, when Japan was operating under a foreign exchange allocation system, and the holders of yen went to the black market in Hong Kong to obtain dollars. Historically, however, the parallel-market premium of the magnitude and volatility seen in occupied China was not uncommon. Several African and Latin

American countries, for example, experienced a parallel- or black-market premium of more than 200 percent in the late twentieth century.

The question is what caused the jump in the parallel-market premium in May 1939. The premium is influenced by a number of factors, including the strength of economic controls (Kiguel & O'Connell, 1995), the ease with which controls can be evaded and the penalty in the event of an arrest (Agénor, 1992), and uncertainty and expectations regarding future economic developments. It is difficult to identify a single such event. From late April, there was a talk of intensifying price controls. In May, the newly designed military note was introduced, signalling that the withdrawal of Bank of Japan notes from Shanghai was imminent. Some holders of yen may have responded to these and other similar developments by rushing to China to purchase foreign goods or currencies. In this interpretation, the sharp depreciation of the yen against the national yuan was a shadow of the yen's depreciation against the pound. This explains why the yen appreciated back against the yuan as soon as the termination of official support caused the yuan to collapse against the pound.

VII. CONCLUSION

This paper has explored a phenomenon observed in the early months of the Second Sino-Japanese War, in which the value of the Japanese yen, used as occupation currency in Central China, fell substantially below its official value against the British pound. The depreciated yen in Shanghai created adverse consequences for Japan's military campaign, among which the most alarming was the loss of foreign exchange when Japanese products were exported to third countries by way of Shanghai. Foreign currencies and gold bullion were smuggled out of Japan to purchase depreciated yen, as were Bank of Japan notes to evade exchange and trade controls to purchase foreign goods. Depreciated Japanese yen notes were shipped from China to various parts of the world to make payments to Japan.

The paper has argued that Shanghai offered the venue for a parallel exchange market, which emerged as the benefits of accessing such a market increased with the tightening exchange, trade, and price controls at home while the costs had been reduced by the military occupation that allowed Japanese civilians to travel to China openly. It displayed the volatility characteristic of a thinly traded asset market, but the Japanese yen's daily exchange rate against the national yuan was driven by shocks affecting the respective currencies' exchange rates against the British pound. For a time, the yen's trend implicit rate (obtained from triangular arbitrage) was broadly approximated by purchasing power parity (PPP) between Japan and the United Kingdom. Thus, both liquidity and intrinsic value played a role in the pricing of the Shanghai yen.

In or around May 1939, a large deviation from PPP emerged in favour of the pound. The sudden increase in the parallel-market premium likely reflected the arrival of negative news that signalled a prospective introduction of sweeping price controls in Japan and a complete withdrawal of Japanese yen notes from Shanghai. The phenomenon of the Shanghai yen, in the first place, was made possible by the use of general-purpose banknotes as occupation money. The parallel market thus disappeared in December 1939 when Bank of Japan notes were entirely replaced by specially designed military scrip, which would predominantly remain in circulation until the end of March 1943, some 27 months after the Central Reserve Bank started issuing occupation money for Central China in January 1941.[36]

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