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How Do People Form the Perception of a Link between Foreign Exchange Rates and Exports? The Experience of Japan in the 1920s

Mariko Hatase*

Abstract

Perceptions of the effects of exchange rate fluctuations may influence policymaking processes. We examine how people understood the relationship between exchange rates and exports taking into account the interwar period in Japan, when exchange rates fluctuated and a policy debate regarding returning to the gold standard was active, as an example. The results of textual analysis drawing on newspaper articles from 1925 to 1929 assure that people clearly recognised a relationship between exchange rates and exports, while they also paid attention to the relationship between exchange rates and imports. By detailed analysis of historical materials of major export sectors, namely raw silk and cotton yarns and cotton fabrics, we find that neither sector preferred weak foreign exchange rates and they even called for the gold standard with pre-WWI parity with stronger yen rates. The results of the analyses on profit structures of those sectors show that the producers of raw silk preferred stable exchange rates to a cheaper yen because of the risk transfer system and the market structure. The results also indicate that cotton yarn and fabric sectors preferred a stronger yen for cheaper raw materials with the considerable share of domestic sales of their products.

Keywords: Exchange rate; Gold standard; Exports; Imports

JEL classification: F31, F33, N15, N65

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1. Introduction

Perceptions of the effects of exchange rate fluctuations may influence policymaking processes. The fear of the revaluation of the yen at the end of the Bretton Woods era by Japanese authorities is one of the well-known cases. For example, Nakamura (1993) claims that, in the late 1960s, the desirable macroeconomic policy to deter price increases was a revaluation. However, in fear of the negative effects of revaluation, monetary authorities chose to tighten monetary policies, which triggered the negative reactions of foreign counterparts and also caused large revaluations afterward. Takagi (2015) points out that monetary policies after the transition to floating in 1971 were one of the significant tools for deterring the volatilities of foreign exchange rates when exchange rate levels were intertwined with trade frictions between the United States and Japan. Takagi (2015) also suggests that one of the reasons for such a ‘fear of revaluation’, which appeared as a form of sticking to a fixed exchange rate at 360 yen per dollar before 1971, is Japan’s experiences from the 1950s through the early 1960s. At that time, Japan returned to the international economy after the post-WWII occupation by Allied forces and faced a hostile world. Many countries were against Japan’s joining the General Agreement on Tariffs and Trade (GATT), reserving the most favoured nations clauses, and refusing exports from Japan. Those who experienced such a harsh environment in the government then became senior officers in the 1970s. Their concerns about the status of Japan’s products in the international markets resulted in a ‘fear of revaluation’.

There is a missing factor, however, in such an understanding. These interpretations take for granted the causal relationship between the developments in foreign exchange rates and exports. When authorities implement policies targeting foreign exchange rates to affect export performances, they must perceive that changes in foreign exchange rates raise or deter exports. If there is no belief about such a causality, foreign exchange rates would not have been chosen as intermediate targets to control exports.

In this paper, we investigate the perception held by 1920s society of the effects of exchange rate fluctuations on exports by analysing newspaper articles. We also examine the factors affecting the profits of major export industries. We focus on the second half of the 1920s as a case when exchange rates were not pegged and a debate regarding foreign exchange policies was active. We conduct textual analysis on the newspaper articles clipped by staff members of the Kobe Higher Commerce School. The results of frequency analysis of terms in articles referring exports reveal that people considered that foreign exchange rates had a relationship with exports. At the same time, such a link is also observed between foreign exchange rates and imports according to the results of co-occurrence network analysis showing a link of terms in a document. Then we analyse the profit sources for major export industries, namely raw silk and cotton related products to figure out why such perceptions were formed. The raw silk manufacturers were

concerned mainly with the volatilities of product prices rather than price levels as they were able to keep the profit margins regardless of the product price levels and they were able to pass on foreign exchange risks to trading companies to some extent. The high share of Japan's raw silk in the global market also worked to reduce their attention to levels of foreign exchange rates. Cotton spinning and cotton cloth manufacturers called for a return to the gold standard with pre-WWI parity, meaning a stronger domestic currency, as they imported cotton from India and the United States, and stronger stable exchange rates were considered as desirable to keep stable profits. The considerable share of domestic markets for cotton yarns and clothes also worked to strengthen their preference for strong exchange rates to acquire cheap raw materials. These results indicate that the effects of exchange rate fluctuations can vary across industries, reflecting each sector's profit sources. People's attitudes towards foreign exchange rate fluctuations partly depend on such factors. Therefore, they can change over time as economic structures shift and, therefore, they are not immutable, even in a single society.

The rest of the paper is organised as follows. Section II provides the historical backgrounds, such as international environments, developments of foreign exchange rates, an overview of Japan's trade in the pre-WWII period and the macroeconomic policies of Japan during the second half of the 1920s. Section III describes the details of data sets and methodology of textual analysis being conducted to figure out the relationship between exchange rates and trades in the perception held by society at the time. The results of the textual analysis are shown in this section. Section IV examines the factors affecting the profits of export industries. Section V concludes this paper.

2. Historical Background

2.1 International monetary environments

The international monetary system in the interwar period was under transition, from the pre-WWI classical gold standard system to the gold-exchange standard, with the intermission of gold convertibility by major countries.¹ Under the classical gold standard, a country pegged the value of its currency to gold at a fixed price and, consequently, to major currencies that were under the gold standard.

As pointed out by Eichengreen (1992), the early 1920s is considered to be a floating period as major countries suspended the gold standard after the outbreak of WWI in 1914. The restoration of the international gold standard system was delayed until the mid-1920s. When a country was off the gold standard, foreign exchange rates could freely fluctuate. Monetary authorities attempted to control fluctuations to some extent with devices such as gold shipments,

¹ The description in this sub-section is based on Hatase, Shintani and Yabu (2013).

exchange market interventions and exchange controls.²

This period of floating was followed by the era of the gold-exchange standard, under which foreign exchange reserves were included in addition to gold as legal reserves against notes in circulation or against sight deposits.³ The adoption of the gold-exchange standard was officially recommended at the Genoa Conference in 1922, and major countries followed this resolution when returning to gold.

2.2 The developments of foreign exchange rates in Japan

Foreign exchange rates in Japan continued fluctuating throughout the 1920s, unlike major advanced countries, which returned to the gold standard by the mid-1920s.⁴ Japan was considered at the time as a peripheral country in the international monetary order.⁵ Japan's monetary system developed with a certain extent of deviation from that of major countries. Japanese authorities declared a gold embargo in September 1917, and the yen-dollar rate departed from the pre-WWI parity, about 2.005 yen per dollar (49.845 dollars per hundred yen).⁶ A series of negative factors, such as Japan's weak external position, the aftermath of the Great Kanto Earthquake in 1923 and the Financial Depression in 1927, prevented Japan from returning to the gold standard. The foreign exchange rates thus continued floating until January 1930, when Japan finally returned to gold.

Chart 1 shows the development of foreign exchange rates of the yen against the major international currencies at the time, namely the US dollar and pound sterling between 1910 and 1930.⁷ Before the suspension of the gold standard during WWI, the yen rate was stable around the rate of pre-war parity. During WWI, the yen gradually increased against the dollar and sterling. After WWI, the yen's value was stable against the dollar in the early 1920s, then collapsed in the mid-1920s. By then, the UK and other advanced countries had achieved a return to gold, while Japan failed to restore the pre-war monetary system. Between 1925 and 1930, the yen fluctuated below the pre-war parity. In July 1929, the change in leadership (Tanaka of the Seiyukai Party was replaced as prime minister by Hamaguchi of the Minseito Party) triggered speculation of a

² Eichengreen (1992).

³ Nurkse (1944).

⁴ The description in this sub-section is based on Hatase, Shintani and Yabu (2013) and Hatase and Ohnuki (2009).

⁵ Flandreau and Jobst (2005).

⁶ The conventional method of exchange rate quoting at the time was dollar per unit of yen which is opposite to current practice. Increases in numbers of exchange rates at the time, thus, mean appreciations of yen's value against dollar or sterling.

⁷ The exchange rates here are quoted rates by the Yokohama Specie Bank. For the quoted rates by the Yokohama Specie Bank, see Hatase, Shintani and Yabu (2013).

return to gold at the pre-war parity, as the Minseito Party had pledged. The yen appreciated and Japan finally returned to the gold standard in January 1930.

[Chart 1]

According to Association for Studies on Banking (*Ginko Mondai Kenkyu Kai*) (1929), the fluctuations of the yen were considerable both in terms of value and frequency when Japan was off the gold standard between 1917 and 1929.⁸ Chart 2 for the annual volatilities of exchange rates of the yen against the dollar and sterling confirms the unusual movements of the exchange rates during the interwar period. Those for sterling hit two peaks, once during WWI and again in the second half of the 1920s, and those for the dollar jumped in 1924 and stayed at a high level in 1925.

[Chart 2]

2.3 The monetary arrangement and related debates in Japan during the 1920s

The government maintained a policy framework on monetary arrangements during the 1920s.⁹ Throughout the 1920s, the monetary authorities of Japan never gave up the return to gold. The debate over the monetary arrangement, called ‘lifting the gold embargo debate (*kin kaikin ronso* in Japanese)’, was mainly about when and how Japan should come back to gold, rather than adopting or abandoning the gold standard system. Association for Studies on Banking (1929) summarises the debate in the 1920s, stating that there was a common notion shared between both sides of the debate: it was necessary to restore the normal operating of the gold standard. They hardly discussed that keeping the gold embargo was necessary.¹⁰

One of the major issues in the debate was the effects of capital outflows expected with a return to gold at the previous exchange rates. Those who were cautious about the return worried that the outflow caused by the return would damage the credibility of the Japanese economy or even political credibility. Those who supported an early return stated that Japan held enough

⁸ The foreign exchange markets in general during the 1920s developed in terms of both volume and technology because major currencies floated, reflecting the suspension of the gold standard. For details, see Hatase, Shintani and Yabu (2013).

⁹ Ito (1989).

¹⁰ In theory, returning to the gold standard does not directly mean applying the previous exchange rates as a parity. However, the majority on both sides took it for granted with the previous rates in the debate. (Association for Studies on Banking 1929, Bank of Japan 1932-33). Only some economists, such as Kamekichi Takahashi, and media, *Oriental Economy (Toyo Keizai)*, suggested the devaluation of pre-war parity, and this view did not prevail among businesspeople (Bank of Japan 1983).

capital to maintain a sustainable economy.

Whether the stabilisation of foreign exchange rates or the keeping of the cheap yen was desirable was another issue. According to Association for Studies on Banking (1929), stressing the stabilisation of foreign exchange rates through the return to the gold standard as a merit was the dominant opinion in the debate in 1928.¹¹ Those who supported the restoration of the gold standard system stressed that the stabilisation of exchange rates was necessary to reduce uncertainty in the business environment. That view had been denied by businesspeople who wanted to enjoy the benefits of the cheap yen before the late 1920s. Those who supported the weak yen claimed that the reasons for economic recoveries from various shocks, such as the Great Kanto Earthquake in 1923 and the Financial Depression in 1927, were mainly weak exchange rates that enhanced exports and suppressed imports. However, only a limited number of businesspeople called for a cheap yen rather than a stabilised one.

Finally, the rationalisation of inefficient or insolvent firms by restoring the gold standard to pre-WWI parity attracted attention in the early 1920s, but the attention fizzled out after experiencing a series of shocks, including the Great Kanto Earthquake in 1923.

The major issues of the debate and the participants shifted according to changes in the economic environment. Tsuchiya (1968) classifies the period regarding this debate into four steps. The first period is from August 1920 to September 1923. Those who belonged to academia mainly stressed the importance of adjustment of the war-time expanded economy and they claimed that it was necessary to let prices drop through contraction brought by the return to gold. The second stage is between September 1923 and the first half of 1925. When exchange rates declined to 38.5 dollars per hundred yen in 1924, recovering the yen rates was the major motivation for supporters for returning to the gold standard. From this stage, not only academic people and journalists, who previously were the main participants in the debate, but also businesspeople and politicians started taking part as the policy choices were considered as a factor directly affecting business profits.¹² The third period is between the second half of 1925 to February 1927. The issue on restoring the gold standard became an important policy issue in this period. The return to gold by major countries in 1925 activated the debates. In the fourth period, from March 1927 to July 1929, at first the financial depression in 1927 eroded the momentum toward lifting the gold embargo. Then in 1928, not only scholars and journalist but also businesspeople started claiming the return to gold, stressing the negative effects of floating exchange rates.¹³ Some people called for a return

¹¹ Tsuchiya (1968) shares the view claiming that restoring the gold standard was urgently necessary for this period to avoid exchange rate volatility because of speculation, as only the yen fluctuated among the major currencies under the gold standard.

¹² Tsuchiya (1969).

¹³ Bank of Japan (1932-1933).

to gold with devalued parity, but such an opinion remained in the minority.^{14, 15} One of the factors supporting the pre-war parity as desirable was the view that weaker yen rates in the mid-1920s caused price increases. Some claimed that the reducing import prices for the consumers' sake was necessary, and some stressed the necessity to reduce prices to improve the competitiveness of Japanese products in the international market through contractionary macroeconomic policies for preparing for the return to gold.¹⁶

2.4 Perceptions regarding the fluctuations of exchange rates and factors behind fluctuations

As seen in the previous section, the de-facto floating was anchored on the pre-war parity rate because the question of when the gold standard should be restored was the major issue while that of which rate would be appropriate was set aside.¹⁷ Under such circumstances, expectations about changes in policies toward gold had a considerable impact on foreign exchange fluctuations. For example, the expectation of the early return to gold supported by the government announcements on foreign exchange market interventions, such as the statement by Prime Minister Hamaguchi in November 1924, pushed up the yen rate from winter 1924 to spring 1925.¹⁸

In addition to the government policies, there were other factors affecting foreign exchange rates. Association for Studies on Banking (1929) points out that there were several factors driving exchange rate fluctuations, namely external positions, economic policies, political events and various economic events. It describes, 'foreign exchange rates sensitively and significantly reacted towards such factors driving speculations. The range of the fluctuations were wide and the frequencies of such fluctuations were large, causing serious damage to merchants and manufacturers'.

These factors affected the yen rate independently or sometimes worked with other factors. For example, Bank of Tokyo (1981) describes that the combination of a trade surplus accompanied with expectations of an early return to gold led to strong yen rates in late 1922.

¹⁴ Bank of Japan (1983).

¹⁵ It should be noted that one of the leading figures throughout the debate, Sanji Muto, the President of Kanegafuchi Boseki, shifted from an enthusiastic supporter of a return to gold with prewar parity to a supporter for a devalued new parity (Saito 2015). Before Japan returned to gold, British and US bankers requested to achieve yen stability when Japan started negotiations to refinance its foreign currency denominated bonds and such requests were interpreted as returning to gold. Among them, at least Morgan Company hinted at a new devalued parity (Metzler 2006).

¹⁶ Bank of Japan (1983).

¹⁷ Teranishi (2003).

¹⁸ Bank of Japan (1932-1933).

2.5 Developments of exports in the 1920s

Chart 3 shows the developments of exports in nominal and real terms.¹⁹ Japan's exports continued growing from its termination of autarky in the late 1850s. Their expansion accelerated once the 20th century started. Nominal exports ballooned because of the stopping of exports from Europe during WWI. They suffered from shrinking demand once that war ended, and then recovered until the collapse of demand because of the Great Depression, which began in 1929. Export performances improved shortly after Japan's departure from the gold standard in 1931 and expanded until the late 1930s. The degree of swing during and after WWI seen above is softened when observing export developments in real terms, hinting that part of the upward and downward changes was brought about by price fluctuations rather than changes in volume. The decline during the Great Depression era was mild in real terms.

[Chart 3]

The export structure by the mid-1920s shows the dominance of textile products with a 70 per cent share in 1925.²⁰ Raw silk accounted for 35 per cent against the total export value in 1925. Cotton fabrics and cotton yarn followed.²¹

The modern cotton industry in Japan emerged from the 1870s through the 1890s with the technological introduction from Britain and other European countries. The cotton yarn sector initially had to compete with imported cotton yarn from advanced countries and gradually achieved import substitution. Then it became an exporting industry.²² The cotton clothes sector followed these steps.²³

The interwar period saw a gradual shift in cotton-related exports from low valued-added to high value-added products. The share of cotton yarns to total exports declined, reflecting the increasing labour costs of Japan, while the share of cotton clothes increased. Among exports of

¹⁹ The description in this section is based on Sugiyama (1989), Oku and Yamamoto (1990), and Nakamura (1993) unless otherwise mentioned.

²⁰ Figures in this paragraph are from Maeda and Yukisawa (1978) and Yamamoto and Yamazawa (1978).

²¹ The fourth largest share is occupied by silk clothes with five per cent to total exports. Among silk clothes, *habutae*, plain and undyed silk fabric, accounted for a considerable share. Exports of Japanese *habutae* expanded under the trend of 'democratization' of silk, a shift from luxury products to ordinary commodities in the late 19th century and the early 20th century. Initially *habutae* was a labour-intensive product as it was woven by hand. Then power looms were widely used against the increases in wages. However, by the shift towards relative capital-intensive products, *habutae* lost ground in global competition because the United States and other advanced countries had comparative advantages. The export value of *habutae* hit its peak in the 1910s. On this issue, see Hashino and Otsuka (2020).

²² Abe and Hirano (2018), Takamura (1971).

²³ Watanabe (2007).

cotton fabrics, the share of breached or dyed ones increased.²⁴

3. Societal Perceptions of the Relationship between Foreign Exchange Rates and Exports

3.1 Anecdotal evidence

As described in the previous section, different opinions appeared in the debate on the gold standard during the 1920s, and some of them reflected the view of the roles of foreign exchange rates on external balances. To figure out the driving forces behind the debate which affected the formation of foreign exchange policies, we analyse societal perceptions of exchange rates and exports. In this sub-section, we review the anecdotal evidence.

Association for Studies on Banking (1929, p.37) claims, ‘it is needless to say that declines in foreign exchange rates give advantages to exports and disadvantages to imports’.

The stance toward the desirable monetary system and foreign exchange rates varied across the industry. The dominant export items were mainly textiles, especially raw silk and cotton-related products, yarns, and fabrics. These two sectors, silk and cotton, had different reactions toward changes in foreign exchange rates when Japan was off the gold in the 1920s. On the surface, both sectors called for a return to the gold standard, while the motivations behind this call were different, reflecting their production structures. Raw silk producers called for the stability of exchange rates, while cotton-spinning industries searched for cheaper materials with relatively high and stable exchange rates. Raw silk industries purchased raw materials from domestic sericulture farms, while cotton industries imported cotton.²⁵ ²⁶ Therefore, the effects of foreign exchange rate fluctuations in the former mainly appeared on the export side, while those in the latter could be observed in both imports and exports.

The production of materials for raw silk, cocoon, had significant seasonality. Raw silk producers could purchase cocoons only in spring and autumn. Some contemporary research treats this seasonality as the reason why raw silk manufacturers asked for the stabilisation of foreign

²⁴ Cotton spinning firms set up spinning factories in China as import substitutions there developed and, at the same time, demand for Japanese cotton yarns declined, partly reflecting the relative wage increases in Japan against China. For the details of foreign direct investment of Japan’s spinning firms in China, see Abe (2022).

²⁵ For the details of major domestic sericulture regions, see Ishii (1972).

²⁶ During the Edo period when Japan closed its economy to the world, cotton was one of the major agricultural products and farmers engaged in cotton production accounted for one third of all farmers. However, imports devastated domestic cotton sectors once cheap cotton became available in the global market (Shibahara 1981). In addition to higher prices compared to imported cotton, the quality of domestic cotton, which was not suitable for modern production process with machines, caused the diminished demand on domestic cotton. Domestic cotton fibres were too short and thick for spinning machines. Indian cotton had thinner and longer fibres and Japanese cotton spinning factories gradually shifted from domestic to foreign cotton, such as Indian cotton, for their materials (Abe and Hirano 2018).

exchange rates by pegging the yen's value to gold.²⁷

Cotton yarn manufacturers called for the return to gold to achieve more expensive foreign exchange rates to pull down their production costs. For example, in 1924, when exchange rates in Japan experienced a significant decline, Sanji Muto, the president of Kanegafuchi Boseki Limited (one of the largest cotton spinning companies²⁸ in Japan), who was famous for his opinion supporting the early return to gold, described the business environment at the shareholders meeting. He claimed that 'foreign exchange rates gave cotton-spinning industries disadvantages for imports. As a result, raw material prices increased, pushed up production costs, and harmed both domestic and foreign sales'.²⁹

Importers in other sectors also called for a stronger yen to reduce purchasing prices. For example, the Association of Timber Importers (*Nihon Gaizai Yunyu Kyokai Rengokai*) announced in October 1928 that it requested the government to return to gold as early as possible.³⁰

The developments of stock prices usually reflect people's expectations of future profits. Thus, for export sectors, the perception of the effects of foreign exchange rate changes can be observed to some extent. Chart 4 shows the developments of stock prices for cotton-spinning industries and some other sectors from 1925 to 1932. When the probability of a return to the gold standard was actively discussed, which meant that future increases in foreign exchange rates were expected, the stock prices of the cotton-spinning and clothes sector were relatively stable until the first half of 1929.

[Chart 4]

In contrast, manufacturers facing competition for import goods, such as steel, were reluctant about the restoration of the gold standard as stronger yen rates would be more advantageous for import goods. The Association of Steel Manufacturers (*Tekko Kyogikai*) claimed that steel manufacturers were on the edge of breakeven points and increases in the yen's rates

²⁷ Association for Studies on Banking (1929).

²⁸ Kanegafuchi Boseki and four other cotton spinning firms (Toyo Boseki, Dainihon Boseki, Fuji Renga Boseki and Nisshin Boseki) were considered to be the five major spinning companies (*Godai Bo*) (Kasuya, 2019).

²⁹ The Minutes of the 75th General Meeting of Shareholders of Kanegafuchi Boseki (in Japanese, Kanegafuchi Boseki Kabushikigaisha Dai 75 Kai Teiji Kabunushi Sokai Sokkiroku), 22 July, 1924, in Ito (2019).

³⁰ The Announcement on Lifting the Gold Embargo (in Japanese, Kin Kaikin ni Kansuru Seimei Sho), 8 October 1928, in Bank of Japan (1968).

would cause reductions in their sales and profits.³¹ ³² It called for policies to offset the negative impact to some extent.

3.2 People's Perception of the Relationship between Exchange Rates and Exports in Newspaper Articles

3.2.1 Textual analysis

In the next stage, we conduct analysis on the perceptions in the society, not only among exporters nor importers. We take newspaper articles at the time as samples, assuming that newspaper texts reflect the views of the masses who acquired voting power.

The 1920s saw drastic changes in social, political, and economic structures after WWI. In the case of Japan, WWI caused severe and irreversible structural changes in the economy. The economic boom during WWI enhanced urbanisation, accompanied by massive migration from rural to urban areas.³³ The labour force in the agriculture and forestry sectors was reduced by 850,000 between 1914 and 1918. The share of the population living in cities with more than 100,000 residents increased from 12 per cent to 19 per cent between 1913 and 1920. Urbanisation and the development of heavy and chemical industries created a social class of factory workers and industrial areas around large cities.

The 1920s saw changes in political structure as well.³⁴ The voting right was expanded, and in 1925, universal male suffrage expanded the voting base from wealthy people who could pay certain amounts of taxes to all males over 25 years old. The 1920s was an era of party politics. The first effective party government was established in 1918, and the practice that the majority party in the Diet took power was established.³⁵

Such political, social, and economic changes resulted in a booming publishing industry, including the mass circulation of magazines, newspapers and books among the emerging new middle class. The debates over the direction of social change and the character of modern Japanese life took place in the mass media. Among such media, newspapers rapidly spread in society, and more than 80 per cent of people in urban and rural areas became newspaper readers.³⁶ The

³¹ November 1928, Association of Steel Industry (*Tekko Kyogikai*), The Impacts of Lifting the Gold Embargo on Steel Industry (in Japanese, *Kin Kaikin no Seitetsu Kogyo ni Oyobosu Eikyo ni Tsuite*), in Bank of Japan (1968).

³² The possible policy tool was increase in tariff. In 1926 the tariff rates increased for wide-ranged products, while that for pig iron was not raised. Subsidising capital investments was instead adopted. The iron manufacturer requested to raise the tariff and the Council of the Commerce and Industry suggested to raise the tariff in 1927. However, it was in 1932 that the tariff on iron was finally raised. For the details, see Ministry of International Trade and Industry (1961), and Ministry of Finance (1963).

³³ The description in this and the next paragraphs are based on Nakamura (1993).

³⁴ The descriptions in this and the next paragraphs are based on Gordon (2019), unless noted otherwise.

³⁵ Takeda (2002).

³⁶ Newspaper readers were not limited to intellectuals. During the Taisho era (1912–1926), about 10 per cent of day labourers, 80 per cent of regular workers, 90 per cent of professional women and 80 per cent of farmers were likely to be newspaper readers, according to the results of a variety of social research

circulation numbers of newspapers rapidly expanded, and opinions shown in newspapers were influential on forming public opinions.³⁷ At the same time, the contents of newspapers reflected such public opinions. The correlation between the tones of articles and the tendency of public opinions became stronger in this period.³⁸

We apply text mining methodology in this analysis. Text mining is a data analysis method for large semi-structured and non-structured data.³⁹ It is the process of converting the text into numbers or converting the text to meaningful content. This technique enables us to extract information from various kinds of documents. In financial analyses, business reports, news and documents published by central banks are major data sources. Some studies obtain information about sentiment and show the linkage between such information and variables in financial markets or economic indicators.⁴⁰

Text mining methodology usually takes the following steps: gathering, pre-processing, indexing, mining and analysing. Data are gathered and then processed to be ready for analysis. Pre-processed texts are indexed, if necessary. Indexing creates an index for specific terms, such as their locations and numbers, enabling researchers to quickly access and search stored data.⁴¹ The next step is mining, in which special techniques are used to obtain new information from gathered data sets. For example, certain algorithms, inference techniques and information-extracting techniques are applied.⁴² The final step is analysis, where researchers interpret results acquired through mining.

To conduct the activities from the second to fourth step above, we rely on KH coder as the principal software for the analysis. KH Coder is a software for quantitative content analysis or text mining adaptable to texts in Japanese and other languages.⁴³ It applies morphological

(Yamamoto 1981).

³⁷ Nakamura (2004) analyses the discussions in newspaper articles on the lifting of the gold embargo using articles in *Osaka Mainichi Shimbun* and points out that this paper basically supported the opinions calling for the rationalisation of industries and the disposal of bad loans.

³⁸ Kase (2011a). The circulation numbers for the daily published newspapers were 1.79 million in 1910 and they saw a remarkable increase to 1930 with the figure of 10.13 million (Kase 2011b). The nationwide statistics are available for the later period. In 1939, the number of copies per person was 26 and Kase (2011b) estimates that, based on this figure, 35 percent of households bought newspapers. The figure shows asymmetric features by region: high figures in large cities such as Tokyo, Osaka, and Nagoya and their outskirt areas, while low figures in the Tohoku region and in Okinawa prefecture. The number of issues was smaller than the number of newspaper readers. According to Yamamoto (1981), this gap emerged because of workers and farmers who did not buy newspapers on their own but instead read them at their offices or social gathering occasions in rural areas.

³⁹ The descriptions in this paragraph are based on Türegün (2019) unless noted otherwise.

⁴⁰ Okazaki and Tsuruga (2015).

⁴¹ Chang et al. (2018).

⁴² Ibid.

⁴³ For the details of the software, see <https://kxcoder.net/en/> and Higuchi (2014).

analysis for sample texts and allows users to conduct basic statistical analysis, such as counting term frequencies and co-occurrence networks. The written Japanese language does not have spaces between words, unlike English, which requires spaces. Therefore, before applying text mining techniques, it is necessary to divide a sentence into words, in the case of Japanese. Several morphological analysis algorithms exist, such as JUMAN, ChaSen and MeCab. KH Coder provides ChaSen and MeCab, and we apply ChaSen for the analysis in this section.⁴⁴

3. 2. 2 Data

For constructing data sets for text mining, we rely on the Newspaper Clipping Collection held by the Research Institute for Economics and Business Administration (hereafter RIEB), Kobe University (*Kobe Daigaku Keizai Kenkyusho Shimbun Zassi Bunko*). These are available at the Kobe University Library.⁴⁵ The predecessor of the RIEB, the research department of the Kobe Higher Commercial School (*Kobe Koto Shogyo Gakko*), started clipping articles related to economic and business topics from major newspapers in 1911. The clipping activity was planned as one of the research activities of the research department and the initial purposes for the collection was to provide information regarding contemporary economic issues for the researchers from the Kobe Higher Commercial School.⁴⁶ Then the clipping tasks were transferred to the Institute of Commerce Study (*Shogyo Kenkyusho*) in 1919.

This collection has broad coverage in terms of the number of newspapers.⁴⁷ In the collection's early days, the number of newspapers covered by the clipping works was 26 and gradually expanded to over 50. Such wide coverage is an advantage for textual analysis as we can avoid bias of opinions deriving from particular stances each newspaper takes toward policies. For example, the Asahi Newspaper (*Asahi Shimbun*) was known for its strong opinion calling for the early return to the gold standard during the interwar period.⁴⁸ This fact hints at a bias in the articles for particular perspectives.⁴⁹ If we only rely on this single newspaper for textual analysis, we could misjudge the tone of public opinion about the gold standard.⁵⁰

⁴⁴ For the operation of KH coder, see Higuchi (2016, 2017).

⁴⁵ For the details of the collection, see the following site. <https://lib.kobe-u.ac.jp/da/np/>

⁴⁶ Yamamoto (1986).

⁴⁷ For the pre-war period of newspapers, RIEB's collections are known as a systematic and wide-ranged collection. Another example was the newspaper article collection by the Research Department of the South Manchurian Railway but it was lost after WWII (Yamamoto 1986).

⁴⁸ Tsuchiya (1968).

⁴⁹ According to Wakatabe (2004), other major newspapers with a large circulation, such as *Osaka Mainichi Shimbun* and *Tokyo Nichinichi Shimbun*, also supported the return to gold with prewar parity.

⁵⁰ It should be noted that sample pools for the analyses below cannot be free from regional bias considering the high share of articles in newspapers with their head offices in Osaka rather than in Tokyo

Another advantage of this data source is that the quality of articles, including this collection, is guaranteed to some extent, as the selection and classifying of articles were conducted by professors or staff members with equivalent skills from the Kobe Higher Commercial School.

Each article in this database has information in the following two categories: first, information created when each article was published, such as date, the name of the newspaper it appears in, heading, text and tables; second, information added when they were included in the collection, such as article number, tags of classifications and the number of files in which each article is available. The website provides both the image and text of each article, but tables and charts are omitted in the latter. We constructed our samples from text-only articles; thus, the information in tables and charts is not included.

We selected articles sorted in a subcategory, ‘Japan’s external trade’, to examine the relationship between foreign exchange rates and Japan’s exports. We extracted articles between 1925 and 1929 when the Japanese yen floated against major currencies, such as the sterling pound and the US dollar. We excluded the first half of the 1920s even though the yen was a floating currency then because the fluctuations of the yen at the time were affected by unusual shocks, such as the boom and bust after WWI and the Great Kanto Earthquake.

In Table 1 and Table 2, we show the summary statistics for the sample articles. There are 1,060 articles from 13 newspapers. Each year contains 212 articles on average. The largest number is 302 in 1926, and the smallest is 123 in 1928. The largest sample group is *Osaka Asahi Shimbun*, with 227 articles. The smallest is for *Hochi Shimbun* and *Seoul Nippo*, with two articles.

[Table 1]

[Table 2]

3. 2. 3 Pre-processing of data

Before conducting textual analysis, we adjusted the data sets according to the following process: (1) adding some words into the dictionary and (2) excluding some words from the dictionary.⁵¹

Some technical words/phrases in the 1920s are different from current ones, and if they are not included in the dictionary, there may be a bias in the results. For example, the word *kwase-reto* is widely used to mean ‘foreign exchange rates’ in Japanese today. In the 1920s, the word *yen-ka* (value of the yen) was used with the same meaning as *kawase-reto* today. Thus, we added

and a local paper in Kobe (*Kobe Yushin Nippo*).

⁵¹ We use the ‘add word’ function of KH Coder to add some words and use the ‘stop word’ function to remove some words.

it to the dictionary; otherwise, information about foreign exchange rates would be incomplete.

There are some words/phrases that had to be removed as they were added when the data sets were digitised for editorial purposes and were not in the original articles. The data sets in text format in the newspaper clipping collection do not include tables or charts, while the original articles contain them. When tables and charts are omitted, words or texts indicating these changes made by the data provider appear in the texts. For example, the phrase *zuhyo ari shoryaku*, which means tables and charts are omitted, often appears in the articles in text format in the data sets. As it can affect the calculation of the co-occurrence network analysis, we removed these phrases from the dictionary (for the list of words/phrases subjected to these adjustments, see Table 3).

[Table 3]

3. 2. 4 Methodology

We examine term frequencies and co-occurrence networks. For both analyses, our sample texts undergo morphological analysis by KH Coder. Once the sentences are split into words, we conduct two analyses: term frequency and co-occurrence networks.

For term frequency, KH Coder provides the number of occurrences of each word in all the sample documents and shows the results in order according to the frequency of occurrence. We expect that the results of this analysis will show what factors were considered important when discussing Japan's external trade at the time.

For co-occurrence networks, we rely on the Jaccard coefficient to judge the degree of connections between words. The Jaccard coefficient for a word between A and B is calculated as follows:⁵²

$$J(X_A, X_B) = |X_A \cap X_B| / |X_A \cup X_B| \quad (1)$$

where

X_A : a document including word A

X_B : a document including word B.

We interpret that the larger the Jaccard coefficient is, the stronger the connexion between words A and B is. We expect if people consider that two factors are linked in one phenomenon, the terms used for these two factors were strongly connected in our samples.

⁵² Kan and Ootaka (2018).

3. 2. 5 Results with original data sources

Table 4 shows the top 20 words that appear in the whole sample. The most frequently used word is ‘exports’ with 5,626 occurrences. In this period, Japan recorded chronic trade deficits, and the word ‘trade deficits’ (*nyucho*) is in seventh place with 1,493 occurrences.⁵³ The term ‘foreign exchange’ (*kawase*) is in 15th place with 881 occurrences, indicating that people perceived a relationship between foreign exchange rates and external trade during this period.

[Table 4]

However, the co-occurrence network analysis does not show a relationship between the terms ‘foreign exchange rates’ and ‘exports’. Chart 5 shows the results of the co-occurrence network analysis. Despite the frequent use of the term ‘foreign exchange’ (*kawase*) in our sample, it does not show a strong relationship with the word ‘exports’ (*yushutsu*). The word foreign exchange does not even appear in the resulting chart.⁵⁴

[Chart 5]

In short, ‘foreign exchange rates’ was an important term when a newspaper article discussed external trades of Japan, but it did not show any strong ties to the word of ‘exports’.

3. 2. 6 Results with sanitised data sets

The opaque results in the previous section could stem from the inclusion of irrelevant articles about the relationship between foreign exchange rates and exports, as the original sources cover trade in Japan in general. For example, one of the articles described the organisation of the Soviet Union’s trade office in Japan, and it had nothing to do with people’s perception of the relationship between foreign exchange rates and exports.⁵⁵ Such information generates a noise that masks the relationship we intend to analyse. Therefore, we adjust data sets by excluding such articles in the next step.

We adjusted data sources following the process below. The article samples of each category are in the Data Appendix.

⁵³ For the details of external balances of Japan for the interwar period, see Ito (1989).

⁵⁴ The number of words for the analysis here is 60. We also conduct the analysis for 80 words and 100 words but the word ‘foreign exchange’ does not appear in either case.

⁵⁵ ‘A Succession of Deal Seekers (in Japanese, Aitsugu Torihiki Kibosha)’, Osaka Asahi Shimbun, 7th October 1925.

Articles containing only published statistics were removed. A considerable number of articles in the previous sample pool only showed the amounts of exports and imports in a certain period. This type of article was removed as they did not have any information about people's perception of causality between exchange rates and exports.

Articles without the word 'exports' were excluded. Because we need to analyse the relationship between foreign exchange rates and exports, articles without the word 'exports' were removed.

Articles with the phrase 'exports and imports' (*yushutsunyu*), which means 'trade' rather than exports, were removed. We excluded articles containing only the phrase 'exports and imports' that referred to trade rather than discussing exports and imports, respectively. In Japanese, a phrase combining exports and imports (*yushutsunyu*) is often used as an equivalent to 'trade'. Even in this case, the KH Coder counts it as an independent word for exports as the phrase included the word 'exports' (*yushutsu*). In newspapers in the 1920s, the term 'trade' often seemed to be altered by 'exports and imports'. We excluded articles with this usage from the sample pool.

Articles containing words describing the developments and conditions of exports were selected. As we are interested in the effects of foreign exchange rates on exports or imports, we only extracted articles with terminology showing conditions or fluctuations of exports or imports. Examples of these keywords are 'decrease', 'increase', 'improvement', 'slump', 'recovery', 'deterioration', 'stagnation' and 'boom.' The complete list of keywords is shown in Table 5.

[Table 5]

As a result of the sanitisation process above, 501 articles are left in our sample pool. The results of the analysis with the new data sets follow. Table 6 shows the term frequency in this sample pool.

The most frequently used word is 'exports' with 3,755 occurrences. This result is expected as all our sample articles contain that word. The second and third most frequently used words are 'trades' and 'imports'. The words showing the condition of trade, such as 'increase' (*zoka*), and verbs, such as 'being' (*iru*) and 'view' (*miru*), are in the top 10. 'Trade deficits' (*nyucho*) is located in the 10th place. The word 'foreign exchange' (*kawase*) takes a higher place than in the previous results at 12th place with 751 occurrences. These results suggest that there seems to be a relationship between foreign exchange rates and exports/imports/trade.

[Table 6]

The results of the co-occurrence network analysis in Chart 6 hint at the relationship between foreign exchange rates and exports with this sample pool. When we analyse the top 120 words, the linkage between foreign exchange rates and exports appears in the results chart. As the articles we selected are only ones with words indicating the condition of exports, this result suggests that foreign exchange rates were considered to affect the development of exports. The results also indicate the linkage between foreign exchange rates and imports to the same extent. Therefore, it is necessary to analyse the public's perception of foreign exchange rates and exports and imports when we examine their understanding of the relationships between foreign exchange rates and trade.

[Chart 6]

In the next section, we examine the profit sources for two major export industries, namely raw silk and cotton yarn/clothes to figure out why both exports and imports mattered when people thought about foreign exchange rates in the second half of 1920s.

4. Corporate Profit Sources and Foreign Exchange Rates

4.1 The profit sources of major exporters

In this section, we examine the impacts of exchange rate fluctuations on the profits of major exporters, namely raw silk and cotton products industries.

What types of relationship between exchange rates and business performances existed in major export industries? In general, cheap yen was considered to provide advantages for export products. For example, the corporate history of Gunze Silk Manufacturing Co., Ltd. notes, 'In 1924, Japan's trade continued to record deficit. When the yen exchange rate fell, raw silk exports had advantages. The yarn price began to rise around August, and in November, it reached the 2,000 yen level at the end of this business period. Contrary to the initial pessimistic forecast, profits reached a huge amount of 5,410,000 yen, which was close to 62 per cent of the average paid-in capital'.⁵⁶

However, more detailed examinations are necessary to understand the public's perception of foreign exchange rates as a factor affecting the business environment, especially major exporters.

One of the channels through which foreign exchange rates affect the behaviour of firms is found in some literature regarding capital investments. According to such literature, exchange rates affect profits through foreign product prices and imported raw material prices. Campa and

⁵⁶ Gunze Silk Manufacturing Co., Ltd., History Compilation Committee (1960).

Goldberg (1999) examine the relationship between foreign exchange rates and investments, stressing the process of profits being affected by exchange rates. The effects of exchange rates on profits partly rely on the size of the industry's external operations. The effects of size appear through imported inputs and export channels. Changes in exchange rates lead to changes in product prices and then cause shifts in the demand for the products in question.⁵⁷ The exchange rate affects expected profitability through three channels: export market revenues, imported input costs, and home market revenues.

In the model introduced in Matsubayashi (2010), changes in foreign exchange rates affect corporate profits through changes in revenue. Foreign exchange rates form one of the factors determining sales in foreign markets and production costs if a firm draws on import product materials. Therefore, shifts in foreign exchange rates lead to changes in revenue and, as a result, profits are affected.

To understand the people's attitude towards foreign exchange rates in the second half of 1920s, we examine the channels through which changes in exchange rates could have affected profits, mainly from export revenue side and imported input prices.

The features of costs and profits are usually different across industries and firms. With regard to the effects of foreign exchange rates on profits, the two major exporters, namely raw silk producers and the cotton-related industry, had significant differences. A typical example is that of raw materials. For raw silk products, cocoons were domestically produced, while the inputs of cotton-related products were mainly imported. Such differences may have caused the different attitudes by managements towards foreign exchange rates. Therefore, we examine the features of costs and revenue by industry.

4.2 Determinants of profits of raw silk producers

In this section, we examine the major profits sources for the raw silk industry. The profit margins of raw silk were not high at the time and keeping profits under such a condition required various efforts for silk-reeling firms.⁵⁸

First, we review the cost side of the profit structure for the silk reeling industry. It should be noted with relation to foreign exchange rates that the primary raw material, the cocoon, was domestically produced and, therefore, free from exchange rate risks.

⁵⁷ The degree of changes in product prices can differ across industry/firm as markups can vary across industry/firm. Campa and Goldberg (1999) find that the links between exchange rates and profitability and then investments tend to weaken in high markup industries as firms there can absorb shocks on overall profitability compared to those in low mark-up industries.

⁵⁸ The analysis of the data for profits by sector of the Mitsui Trading Company (*Mitsui Bussan*), which dealt with a wide range of export and import items for Japan at the time, shows that the profit level of commodities, such as raw silk, tended to be low. (Kasuga 2010, Kasuya 2019).

The share of raw material costs was dominant for the cost structure of the silk reeling industry. Katakura Silk Spinning Co., Ltd. (*Katakura Seishi*), one of the largest manufacturers in this industry, reviewed its cost structure as follows:⁵⁹

The averaged compositions of the raw yarn production cost for 20 years since the establishment of the firm [author's note: in 1920] are 78 per cent for raw material cocoon cost and 22 per cent for processing production cost. The importance of the value of the raw material (cocoon) in the management of the silk industry does not have to be mentioned, as it plays a significant role.

According to the Long-Term Economic Statistics, the dominance of the raw material share was universal in this industry.⁶⁰ It accounted for 77 per cent of the total production cost in 1920 and 1925 and 71 per cent in 1929.

Under the thin profit margins, controlling raw material prices was one of the most important concerns of the management for raw silk producers. Sophisticated raw material purchasing skills were required to obtain profits, and each firm created detailed management systems.⁶¹ For example, the Katakura Silk Spinning Co., Ltd. had more than 20 branches in major cocoon-producing regions and a few hundred temporary offices for cocoon purchases. Okaya Silk Spinning, another large silk-reeling firm, sent a hundred employees nationwide to collect price information and to buy cocoons where prices were relatively cheap.⁶²

The bargaining power of the purchasing side was said to be advantageous in the cocoon market.⁶³ For example, Ishii (1994) points out asymmetric information between silk-reeling manufacturers and farmers. Silk producers watched price fluctuations closely in Yokohama, the largest market, while information there did not quickly reach farmers. In some cases, silk-reeling firms even conveyed fake information by telegram, hinting at weak markets in Yokohama to purchase cocoons at low prices. Sato (1978) points out that cocoons were not preservable for long periods, and farmers had no choice but to sell them at the offered prices.

When trading cocoons with farmers, silk-reeling manufacturers were able to avoid losses caused by price fluctuations. It was common to apply a multiplier (*kakeme* in Japanese) as

⁵⁹ Katakura Silk Spinning Co., Ltd. Examination Division (1941).

⁶⁰ Fujino et al. (1979), Table 4-8, p.196.

⁶¹ Hanai (1988), Ishii (1994).

⁶² Ishii (1994).

⁶³ Before WWI, the silk-reeling firms formed syndicates for purchasing cocoons, while the movement for farmers to establish associations only started after WWI (Ishii 1994). From the 1920s, so called 'special contract transactions (*tokuyaku torihiki*)' emerged between silk-reeling firms and farmers' associations but this practice was not yet widespread (Sato 1978). For the details of special contracts, see Hanai (1988).

a price for cocoon transactions between farmers and silk-reeling firms.⁶⁴ *Kakeme* was a standard cocoon price calculated by deducting the profit of yarn manufacturers from the raw yarn price. Thus, it had nothing to do with the demand and supply conditions of cocoons. The following formula was used to calculate *kakeme*.⁶⁵

$$k = (p - c) / 160 \quad (2)$$

where,

k: *kakeme*

p: price of raw silk per 100 *kin* (= six kg)

c: production cost of raw silk.⁶⁶

The Tokyo Higher Commercial School Research Department (*Tokyo Shogyo Koto Gakko Chosabu*) describes the price setting practice as, ‘the standard practice of the cocoon market to estimate the amount of yarn to be produced from the cocoon and to refer to yarn prices when transactions are conducted. For example, it was assumed that 10 *kanmonme* [a unit of weight] of raw cocoon was required to produce 1 *kanmonme* of raw silk. When the price of 1 *kin* [a unit of weight equivalent to 16 *kanmonme*] of raw yarn is 800 yen, the price of the cocoon needed to produce 1 *kanmonme* of raw yarn is equivalent to 50 yen of gold. This is called the cocoon market price of fifty’.⁶⁷ In this example, a *kakeme* is equivalent to 50 yen.

It is clear from the formula above that the major input prices for silk-reeling firms were set to keep certain amounts of profits in advance. In short, raw silk manufacturers were able to avoid the risks of raw material price fluctuations. Farmers bore price risks as the fluctuations in raw material prices were able to be passed on to cocoon producers in the mid-1920s.⁶⁸

⁶⁴ Hanai (1988).

⁶⁵ Kusadokoro, Kagami and Senda (2014).

⁶⁶ 160 is a numerical value derived from the fact that 160 unit (*kan*) of cocoons are required to produce 100 unit (*kin*) of raw silk, assuming a ratio for standard amount of yarn to standard amount of cocoon (producing 100 unit *–monme–* of raw silk from 1 unit *–kan–* of cocoon). (Hanai 1988).

⁶⁷ Tokyo Higher Commercial School Research Department (1915).

⁶⁸ One of the speeches by the president of a silk-reeling firm indicates that such risk had the potential to damage a rural area’s economic conditions as, ‘Fortunately, the spring cocoon price has plummeted this year. We will purchase cheap cocoons to produce raw silk, and we can earn some profits under the raw silk market prices today. On the other hand, cocoon farmers have suffered a great deal of damage in exchange for stable profits for silk producers. As a result, it is worrisome that their purchasing power in rural areas will be affected’. Kanegafuchi Boseki, A brief report of President Muto’s speech at the 75th annual general meeting of shareholders, 22 July 1924, in Ito (2019).

The pricing custom described above, which meant to guarantee profit margins for silk-reeling firms in advance, had to meet one condition to achieve its purpose, namely stable raw silk prices in the period between the purchasing of cocoons and the product sales. The harvest period of cocoons was limited mainly to spring and autumn, and the cocoons harvested in spring were better than those in autumn in terms of both harvest volume and quality.⁶⁹ Therefore, spring was the most important and active season for cocoon purchases. If prices of raw silk at the time of the product sales were more or less the same as in the time of the material purchases in spring or higher those in spring, the profit margins fixed through the formula of *kakeme* based on raw silk prices in spring brought about expected profits. By contrast, if raw silk prices in the sales season declined from spring prices, profit margins actually did not achieve expected profits. Under such conditions, the volatilities of product prices may have been an important risk to be avoided for silk-reeling firms.

Second, we examine the sales side of the profit structure of the silk-reeling industry. As most raw silk was exported during the interwar period, we focus on the export prices.⁷⁰

There were three kinds of entities involving export price setting: silk-reeling firms, wholesalers, and trading firms. When the sales strategy for exporting raw silk was determined, it was not silk-reeling firms but wholesalers and trading companies who played important roles. It was common for silk-reeling manufacturers to outsource sales management to wholesalers, except for a few large-scale firms.⁷¹ Sales strategy depended on sales wholesalers.⁷² In many cases, silk-reeling firms sold raw silk to wholesalers. In the next step, wholesalers re-sold them to trading companies (*shosha* in Japanese), such as Mitsui & Co. Limited (*Mitsui Bussan*) and Asahi Silk, in some cases.⁷³ In other cases, wholesalers worked as trading companies selling raw silk to mainly U.S. importers.⁷⁴

⁶⁹ To be precise, the amount of cocoon harvest in spring was the largest and there was a small amount of summer harvest, with the second largest harvest being in autumn (Ministry of Finance 1937).

⁷⁰ In 1927, 83 per cent of the raw silk produced in Japan was exported (Ministry of Agriculture and Forestry, *The Trends in Demand and Supply Conditions and in Prices of Japanese Raw Silk* [Hompō Kiito no Jūkyū narabini Kakaku no Susei], October 1929, National Diet Library, <https://dl.ndl.go.jp/pid/1192430>).

⁷¹ Hanai (1988), Ueyama (2016).

⁷² According to Hanai (1990), sales management was regarded as a problem outside silk-reeling management.

⁷³ Yamaguchi (1982).

⁷⁴ The exporting business of raw silk in the early modern period was dominated by foreign trading companies even though the government encouraged the establishment of domestic trading companies in the 1880s. In the 1890s, Mitsui Bussan started dealing with raw silk and gradually domestic trading companies expanded its share, while foreign trading firms reduced their share (Kasuya 2019). During the interwar period, domestic firms dealt with more than 80 per cent of the exported raw silk (Ueyama 2016, Table 8-2). Among domestic trading companies, three major trading firms for the silk industry, namely Mitsui Bussan, Yokohama Kiito and Hara Shoten, dominated the market before WWI, while small trading companies, including raw silk wholesalers entered the market during the interwar period and the share of

Foreign exchange risks were partially absorbed by trading firms rather than silk-reeling firms, while some risks remained on the side of silk-reeling firms as it was said that prices in Yokohama markets reflected changes in foreign exchange rates to a certain extent.⁷⁵

According to the document created by the Finance Bureau of the Ministry of Finance (MOF), at the time of transactions between silk-reeling firms and wholesalers, prices were usually not set in advance. Price negotiations were conducted between wholesalers and trading companies. The Finance Bureau of the MOF suggests that it was trading companies who considered exchange rate risks because ‘export dealers do not neglect export profitability by constantly collecting information regarding the raw silk prices in both domestic and foreign markets with constant fluctuations, taking into consideration export expenses and exchange rates’.⁷⁶ The standard procedure for pricing was as follows. First, trading companies added yen-denominated overheads to the raw silk market prices in Yokohama. Then they converted it into dollars with spot exchange rates or 3-month future exchange rates with a letter of credit. Finally, they set prices by comparing dollar-denominated prices calculated by the process above and raw silk market prices for the same ranked silk yarn in New York.^{77, 78}

Trading companies in prewar Japan played important roles in external transactions. There were two types of trading companies. First are general trading companies (*sogo shosha*) that dealt with wide-ranged products, exports and imports. Second, specialised trading companies (*senmon shosha*) traded specific products. According to the products they specialised in, some committed only to exports or imports. For example, trading firms specialised in raw silk treated only exports as Japan did not import them. General trading companies were a unique category for Japan.⁷⁹ According to Ishii (2003), Mitsui & Co. Limited (*Mitsui Bussan*), Suzuki Shoten, and large firms declined (Ueyama 2016).

⁷⁵ Internal research by the Ministry of Agriculture and Forestry pointed out that raw silk prices in Yokohama showed a correlation with prices in New York even though they were able to be diverged because of the differences in economic conditions between two markets or changes in foreign exchange rates (Ministry of Agriculture and Forestry, *The Trends in Demand and Supply Conditions and in Prices of Japanese Raw Silk* [Hompo Kiito no Jukyu narabini Kakaku no Susei], October 1929, National Diet Library, <https://dl.ndl.go.jp/pid/1192430>).

⁷⁶ Finance Bureau, Ministry of Finance, ‘Reference Materials for Raw Silk Transactions and Finances as of October 1937’ (Showa Ninen Jugatsu Shirabe Kiito no Torihiki oyobi Kinyu ni Kansuru Sanko Shiryo).

⁷⁷ Ibid.

⁷⁸ Invoice currencies for silk exports were mainly denominated in the currencies of trading destinations. According to the Finance Bureau of the MOF, ‘there are US currency bills, English currency bills, French currency bills and so on, depending on the export destination of raw yarn. Japanese currency bills are extremely rare’ (Finance Bureau, Ministry of Finance, ‘Reference Materials for Raw Silk Transactions and Finances as of October 1937’ [Showa Ninen Jugatsu Shirabe Kiito no Torihiki oyobi Kinyu ni Kansuru Sanko Shiryo]). Gunze Silk Manufacturing Co., Ltd. attempted to export in yen but was not successful (Hanai 1988).

⁷⁹ General trading companies dealt with a wide range of products. In that sense their functions were similar

Mitsubishi Corporation (*Mitsubishi Shoji*) were the top three trading companies in the 1920s. Among them, the trading activities of Mitsui Bussan were the most distinguished in terms of asset sizes and international branch networks. It also had a sophisticated system to control foreign exchange risks.⁸⁰

How did trading companies to whom the foreign exchange risks were passed on from silk manufacturers absorb the risks? One tool was arbitrage trading of raw silk in the global market. Based on their forecast of fluctuations, Mitsui Bussan conducted net sales and net purchases with high frequency in a short time, considering the correlation between Shanghai yarn, Cantonese yarn and silver prices.⁸¹ However, the world raw silk market was so volatile that even such sophisticated trading skills did not work enough to absorb price risks. Export-specialised trading companies tended to have long positions on foreign currencies and had disadvantages. Some raw silk specialised trading firms went into bankruptcy. Nippon Kiito, one of the major specialised trading firms, fell because of the losses derived from volatile markets. Ueyama (2016) refers to Mitsubishi Bussan's reports, *Ritsugyo Boeki Roku* [Records for Stimulating Trades], which describes the process of the bankruptcy of Nippon Kiito as 'the market has become extremely speculative. ... In the era of turbulent exchange and thread prices, they had repeated misunderstandings of the conditions in the market'.

The second tool used to cope with exchange rate fluctuations was a single firm dealing with export and import products. Trading companies that handled import goods and raw silk, typically general trading companies such as Mitsui Bussan, could bear the risks.⁸² In 1910 Mitsui

to non-Japanese trading companies at the time, such as Jardine, Matheson, & Company. However, general trading companies covered all of the trading destinations from and to Japan, while Jardine, Matheson, & Company traded only in the Asian region (Ishii 2003).

⁸⁰ Suzuki (2021) analyses the foreign exchange risk management by Mitsui Bussan between the 1920s and the 1930s. Mitsui Bussan, which dealt with large amounts of export and import goods, developed a sophisticated system to control foreign exchange risks. Each branch had a section specialising in dealing with foreign exchanges and it traded with banks to sell or buy foreign exchanges. Holding such a specialised section in each branch allowed the company to minimise foreign exchange risks and to conduct effective transactions. The head office and each branch of the firm hedged the risks by applying two principles. The first was managing risks based on local currencies. For example, the New York branch, the main body dealing with raw silk from Japan, controlled the exchange risks in terms of the US dollar. The second was the rule on simultaneous hedging. Once a branch signed a contract embracing foreign currencies, it must immediately hedge currency risks. For example, when the New York branch signed a contract selling raw silk imported from Japan to a US clothes manufacturer, it expected to receive US dollars in exchange for raw silk. The branch was then required to sell the dollar immediately. The basic rule to hedge foreign exchange positions was not strictly imposed at the beginning of 1920s as the operations were left to each branch without the supervision by the head office. Therefore, postponing hedging transactions until favourable rates were offered was quite common in practice for some branches. It seems that the amount of such speculative transactions was not considerable. Between 1925 and 1940 there is only one case in which a penalty was imposed because of the losses caused by such speculative operations.

⁸¹ Ueyama (2016).

⁸² Ibid.

Bussan secured a stable income with a 20 per cent share of Japan's trade. It committed agency contracts for machinery imports with thick profit margins, which enabled it to take risks on volatile commodities, such as raw silk.⁸³ By contrast, small and medium sized export dealers who expanded their share during the interwar period did not find it easy to absorb foreign exchange risks.

The fluctuations in exchange rates were additional factors resulting in product price volatilities for silk-reeling firms because some exchange rate risks remained on their side under the condition where not all trading firms had sophisticated hedging systems.

Although exchange rate fluctuations had an impact on real exports of raw silk, it should be noted that other factors, such as income developments in trading destinations and the competitiveness of Japanese raw silk in the global market, were important. For example, Sato (1978) analyses the price elasticity of silk products' demand in the United States (US) and concludes that the absolute value of the income elasticity of demand for silk products is greater than the absolute value of price elasticity.

The competitiveness of Japanese raw silk in the global market was relatively strong. The countries where the raw silk industry developed were limited. In Europe, only France and Italy produced raw silk. Abe and Hirano (2018) point out the disadvantages of the spread of raw silk production; cocoon-providing areas were limited, and it was not easy to preserve cocoons. Japan's raw silk provided between 70 and 80 per cent of total global consumption.⁸⁴ Summing the average production of raw silk between 1923 and 1927 in Japan, Italy, Korea, and France and the export figures for China, Japan had a share of 70.3 percent.⁸⁵

The market structure also affected the demand for Japanese silk. Raw silk was a highly differentiated product.⁸⁶ Technology, labour skills and fashion determined the demand for each quality of silk. For example, when the US market expanded, workers' skills in this newly-established silk weaving industry were less sophisticated than those in French factories, where workers could treat different qualities of raw silk. Therefore, the US silk weaving industry demanded a standardised quality of raw silk, and Japanese providers met those demands. In the beginning, the quality of Japanese raw silk was not sufficient for warping, and it was mainly exported for wefting. In the early 20th century, Japanese products eventually replaced Italian silk, even for warping.⁸⁷ The market structure in the US changed over time. Until the mid-1920s,

⁸³ Kasuya (2019).

⁸⁴ Sato (1978), Abe and Hirano (2018).

⁸⁵ Figures used for this calculation are in Table 1-2 in Fujino et al. (1979).

⁸⁶ Federico (1996).

⁸⁷ Abe and Hirano (2018).

Japanese silk was used for fabrics in the US. Then, the productions shifted toward tights for women as the market for silk fabric was eroded by the emergence of rayon fabric.⁸⁸

The dominance of Japan's raw silk in the global market was able to weaken the concern on the level of foreign exchange rates by Japanese silk-reeling firms. However, Japan's silk-reeling firms had to cope with high volatility in materials and sales prices.⁸⁹ As the products had small profit margins, the management side of silk-reeling firms was sensitive to price volatility.

For silk-reeling firms, smaller fluctuations in foreign exchange rates, which guaranteed profit margins, were more desirable than lower exchange rate levels.

4.3 Determinants of profits of the cotton products industry

Manufacturers of cotton yarn and clothes faced a different environment than the raw silk industry. Many countries established cotton-related industries, and the international markets were highly competitive. The major cotton-producing countries in Europe were the UK, France, the Netherlands, Germany, Poland, and Russia. The US was also a major producer. Cotton-related industries in these countries played important roles in industrialisation.⁹⁰

First, we examine the profit structure of the cotton industry from the cost side.

Cotton spinning and the cotton clothes sector faced volatile prices in raw materials and products.⁹¹ Japan's cotton products sector relied on imported materials for its major raw material during the interwar period. The cotton-spinning industry consumed imported cotton. When the modern cotton-spinning industry emerged in the late 19th century in Japan, domestic cotton was used, but gradually, foreign cotton suitable for spinning machines (mainly Indian cotton at first and US cotton later on) replaced domestic ones.

Controlling the risks of price volatility of raw materials was one of the major concerns for the management of cotton-related industries to stabilise profits, as it was necessary to meet the shareholders' need for stable dividends.⁹² For example, the president of Kanegafuchi

⁸⁸ Abe and Hirano (2018).

⁸⁹ Raw silk was considered as a product with higher volatilities than silk clothes. In the minutes of branch managers of Mitsui Bussan in 1900, one manager noted that, '*habutae* (a kind of silk cloth) is a safer product than raw silk and we must promote exports of *habutae*' (Minutes of the Meetings of the Directors of the Inland Branches of Mitsui & Co. in 1900 [in Japanese, Meiji Sanjusan Nen Mitsui Bussan Naichi Shitencho Kaigi Gijiroku], in Kikkawa and Oshima 2020).

⁹⁰ Descriptions in this and the next paragraphs are based on Abe and Hirano (2018) unless noted otherwise.

⁹¹ Kasuya (2019) points out the high volatility of cotton trading.

⁹² The cotton-spinning industry was one of the leading industries as far as modern cooperative systems are concerned. The modern cotton-spinning firms were established in the 1880s. Osaka Spinning Co. was established in 1882, and its success worked as a driving force to set up other firms with more than ten thousand spindles during the so-called private company boom in which a number of private companies were established in various industries, such as railway, spinning and mining. Major spinning firms took the form of modern stock corporation (Abe 2022). For the details of the development of the cotton-spinning

Spinning Company, Sanji Muto, stated at the shareholders meeting in 1923:

Japanese spinning companies have always made contracts for cotton in advance and ... usually have enough cotton to cover the demand for the first half of this year. ... The spinning companies are not in a slump, as expected by the public. However, I hope you would understand that we are in a situation where profits will decrease a little.⁹³

The foreign exchange fluctuations could be an additional source of volatility of raw material prices, and cotton-spinning and clothes firms sought to stabilise such costs to keep profits stable for the sake of shareholders. For instance, Sanji Muto claimed at the shareholders meeting in 1926, 'Last year, US cotton had a very good harvest, and the cotton prices fell sharply, so we suffered some loss on the cotton.'⁹⁴ We suffered some losses due to the rapid recovery of the foreign exchange market. As I have just mentioned, we care that the sudden fluctuation of the cotton market and the turmoil of the foreign exchange market will not cause a sharp change in our profits'.⁹⁵

Foreign exchange fluctuations accelerate volatilities in cotton prices during the interwar period. Cotton prices taken from the statistics published by the Japan Spinning Association (*Dainippon Boseki Kyokai*) fluctuated with a coefficient of variation of 0.18 in dollar-denominated prices between 1922 and 1929, while the coefficient of variation increased to 0.22 when the prices were converted into yen.⁹⁶ The floating rates caused by the departure from the gold standard caused higher volatilities in the production costs, which had to be improved from the viewpoint of cotton-related sectors.

Cotton-related firms were concerned not only with the volatility of exchange rates but also with the yen's value. As they imported all their cotton, the price of the yen mattered, reflecting the thin profit margins of their products. For example, Sanji Muto stated, 'Foreign exchanges for import have become very disadvantageous for Japan ... As a result, the price of raw materials to be purchased became high, raising the production cost and eventually adversely affecting the sales of both domestic and foreign markets'.⁹⁷

industry, see Takamura (1971). By contrast, silk-reeling firms were mainly small- and medium-sized companies, apart from two big companies, namely Katakura Silk Co. and Gunze Silk Co. (Sato 1978).

⁹³ Kanegafuchi Boseki, President Muto's Speech at the 72nd Ordinary General Meeting of Shareholders, 22 January 1923 (Ito 2019).

⁹⁴ In this business period, declining prices caused losses because of the future contracts of cotton purchases.

⁹⁵ Kanegafuchi Boseki, President Muto's Speech at the 79th Ordinary General Meeting of Shareholders, 22 July 1926, *Ibid.*

⁹⁶ Japan Spinning Association (1924, 1929).

⁹⁷ Kanegafuchi Boseki, President Muto's Speech at the 75th Ordinary General Meeting of Shareholders,

Second, we examine the sales side of the profit structure of the cotton related industry. Considering competitiveness in the global market, the negative impact of higher exchange rates through export prices could be significant. Still, Sanji Muto's statement above did not mention such negative effects of a higher yen. One possible explanation for the weak concern about a strong yen is the relatively high share of domestic sales for cotton-spinning and clothes firms. The export dependency of the cotton industry was lower than that of the raw silk industry. Half of the cotton clothes were made for domestic users rather than for foreign consumers.⁹⁸ In short, only half of the products were affected by foreign exchange rates as far as sales price is concerned. As for cotton yarn, the domestic production value was larger than cotton clothes, while the export value was much smaller than clothes in the 1920s.⁹⁹ This suggests that most cotton thread was consumed domestically rather than exported.¹⁰⁰

Another possible reason for supporting the return to gold could be the structure of export destinations. It should be noted that not all trade destinations of cotton yarns and fabrics adopted the gold standard. During the interwar period, some major trading destinations applied the gold standard, and others used the silver standard for trade settlements. These monetary structures could have affected the reactions of exporters toward foreign exchange fluctuations against major gold-based currencies. One of the major markets was China, where silver was the standard for settlement. China had been the most important export destination for Japan's cotton yarns and cotton fabrics from the 1890s to the 1920s before the success of import substitution, boycotts of Japanese products, and the introduction of tariffs by the Chinese government, which all led to the sharp decline in the exports of Japanese cotton fabric to China.¹⁰¹ According to the trade statistics, about 40 percent of the cotton products exported to the silver regions and the return to the pre-WWI monetary system did not directly mean an increase in exchange rates.¹⁰²

22 July 1924 (Ito 2019).

⁹⁸ According to Japan Spinning Association (1931), it was not easy to grasp the market structure by shipment destination and only limited data were available. According to the statistics compiled by Ministry of Commerce and Industry, the shipment to domestic market accounted for 53 per cent in 1920 and 43 per cent in 1925 (Japan Spinning Association 1931).

⁹⁹ According to Takeda (2002), the domestic production value of cotton yarn in 1929 was 678 million yen, while that of broad clothes was 526 million yen (Table 1-2 in Takeda 2002).

¹⁰⁰ From the late 19th century to the early 1920s, large spinning firms, such as Osaka Spinning Co., started establishing a weaving section in the same company. In the case of Osaka Spinning Co., 46 per cent of cotton yarn for the materials for its weaving section were produced by the spinning section in the same company in 1904 (Abe and Hirano 2018).

¹⁰¹ Abe (2022).

¹⁰² When Japan adopted the gold standard and left silver in 1882, the declining trend of the relative silver price against gold made businesspeople concerned about negative effects on Japan's exports (Ministry of Finance 1899). However, at that time the Japanese cotton industry was not competitive enough to export its products. According to Takamura (1971), the exports of Japanese cotton yarns until 1892 were a kind of trials of exporting only samples. In the first half of the 1890s, the amount of exports started increasing. In 1926, 10 per cent of total products were exported, and the second half of the 1890s saw a remarkable export

Like raw silk, cotton-related sectors suffered from small profit margins and highly volatile material and product prices. They needed to deter the fluctuations in imported cotton prices to stabilise dividends. Foreign exchange fluctuations accelerated volatilities in cotton prices during the interwar period. For the sales side, higher yen rates had the potential to damage the profits of firms producing cotton-related products but because of the considerable share of the domestic market for their sales, not so much attention was paid to the negative effects of the strong yen. Therefore, stabilising foreign exchange rates by adopting the gold standard was a favourable policy option.

5. Conclusion

During the interwar period, when Japan was off the gold standard and exchange rates floated, exporters recognised that weaker exchange rates would increase exports to some extent. At the same time, the results of the textual analysis of newspaper articles suggest that society gave the same degree of attention to relationships between exchange rates and imports and the linkage between exchange rates and exports.

The reasons for such preference toward exchange rates can partly be attributed to the profit sources of the export industry. In the silk industry, the largest exporting sector of the period, manufacturers of raw silk were concerned about price volatilities rather than price levels, including the level of foreign exchange rates. Most of the raw materials (i.e., cocoons) were domestically produced, and their prices were nothing to do with exchange rates. Reflecting the dominant status of silk-reeling firms in the price negotiations, the risk of product price fluctuations could be borne by cocoon producers rather than silk-reeling firms, applying the formula guaranteeing pre-determined margins for silk-reeling firms. Close examination of the sales process reveals that trading companies, rather than manufacturers, were able to bear the foreign exchange risks of raw silk to some extent. Under the seasonality of raw material purchasing, silk-reeling firms called for stable foreign exchange rates to keep the profit margins fixed at the time of raw material purchasing. The differentiated product market and the large share of Japanese producers in the global market may have diminished silk-reeling firms' interest in price levels.

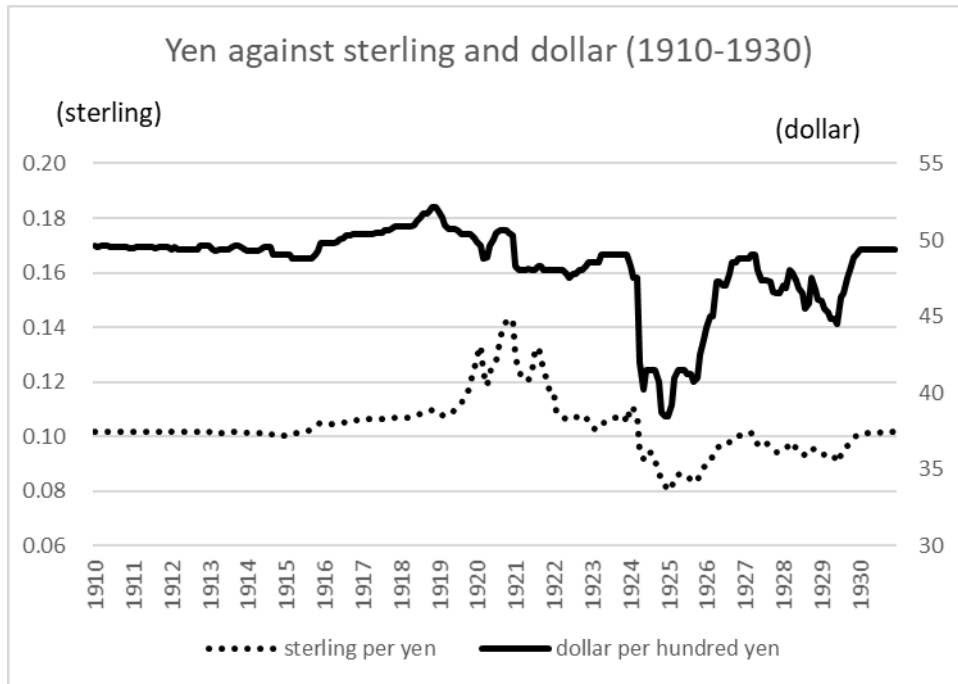
In the cotton industry, manufacturers wanted to keep imported raw materials cheap, and thus, they preferred a high yen rate. As the profit margins in this industry were small, manufacturers needed to reduce volatilities in production costs to keep stable profits and dividends. Therefore, they called for reducing the fluctuations in exchange rates that caused the volatilities in raw material prices. Such attitudes were behind their supporting the return to the gold standard. The considerable share of domestic demand for cotton clothes and cotton yarns also allayed manufacturers' concerns about higher exchange rates.

expansion of cotton yarn. Finally, in 1919, the exports amount of cotton yarns exceeded the imports amount.

In short, most businesspeople in the export sectors desired to return to a fixed exchange rate system in the direction of a higher yen, not the lower value of the yen. The perception of a causal relationship between exchange rates and exports did not have enough power to guide policies toward the depreciation of the yen.

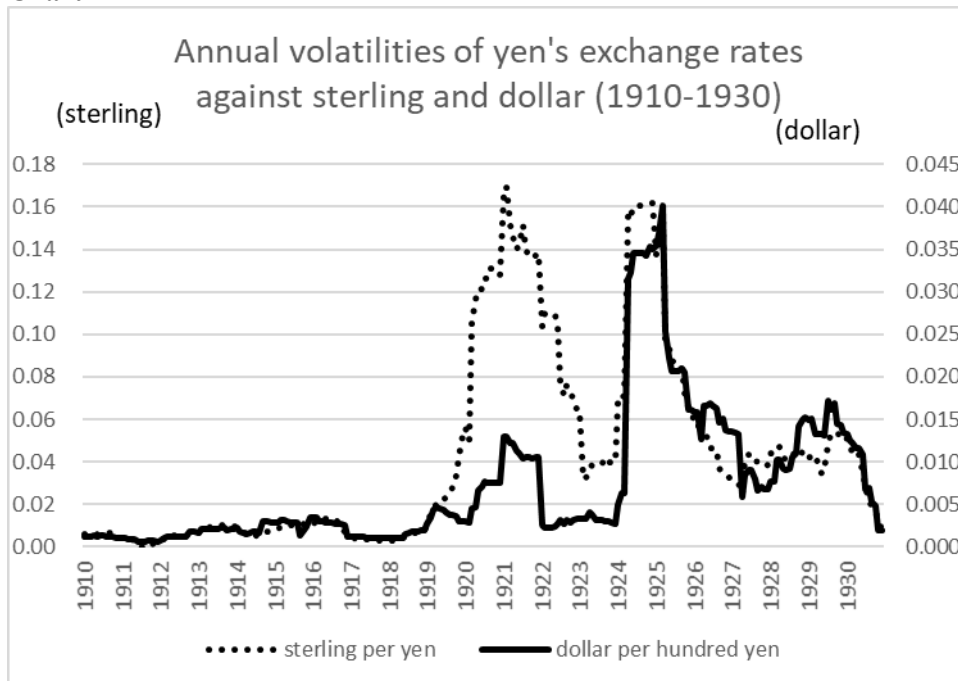
The policy debate over the return to gold were known to contain not only foreign exchange rates but also other factors, such as price levels, capital flows and the effects of tight macroeconomic policies. Examining the roles of such other factors are remaining issues for the comparison with the role played by the recognition of exchange rates in the policy-making process.

Chart 1



(Sources) Cabinet Statistics Bureau, Imperial Statistics of Japan (*Teikoku Tokei Nenkan*); The Institute for Monetary and Economic Studies, Bank of Japan, Historical Statistics (https://www.imes.boj.or.jp/en_publications.html).

Chart 2

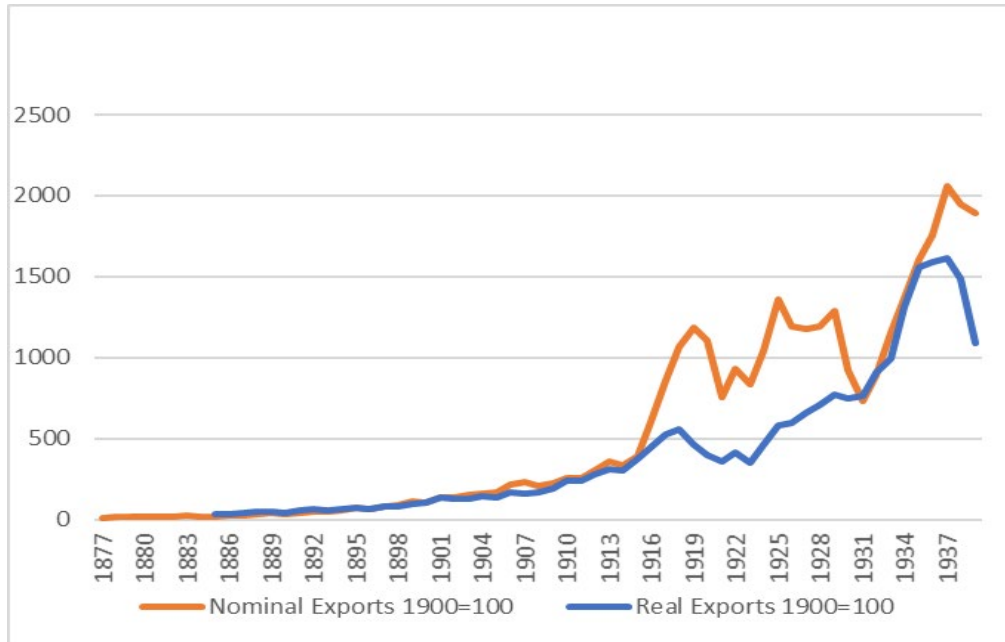


Note: Annualised standard deviation of monthly exchange rates.

(Sources) Cabinet Statistics Bureau, Imperial Statistics of Japan (*Teikoku Tokei Nenkan*); The Institute for Monetary and Economic Studies, Bank of Japan, Historical Statistics (https://www.imes.boj.or.jp/en_publications.html).

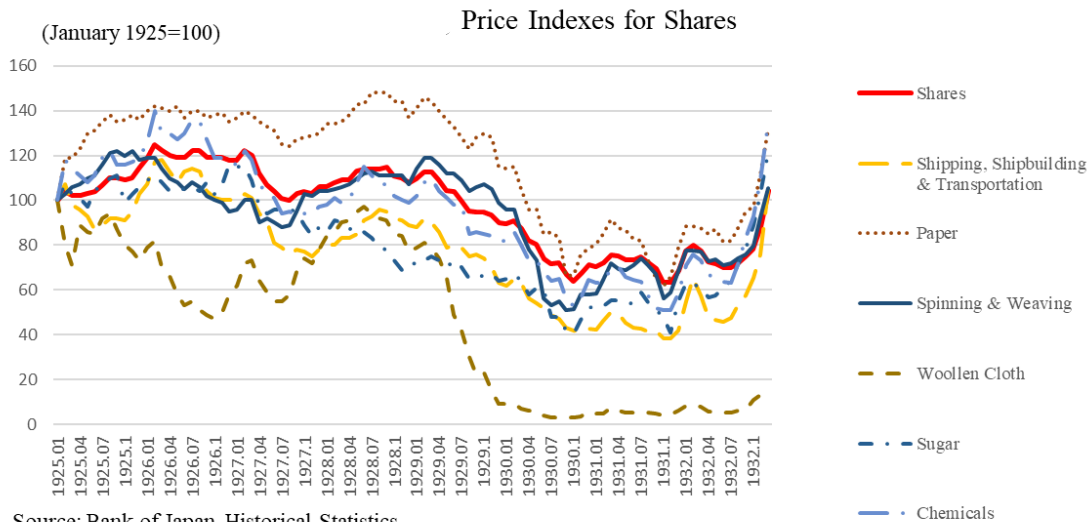
Chart 3

Development of nominal and real exports



(Sources) Ministry of Finance, Reference Book of Financial Matters (*Kinyu Jiko Sankoshō*); Yamamoto and Yamazawa(1978).

Chart 4



Source: Bank of Japan, Historical Statistics,
<https://www.imes.boj.or.jp/en/historical/hstat/hstat.html>

Table 1 Number of articles in the sample pool, by year

Year	Number
1925	289
1926	302
1927	200
1928	123
1929	146
Average	212
Total	1,060

Table 2 Number of articles in the sample, by newspaper

Newspaper	Number of Articles
<i>Ohsaka Asahi Shimbun</i>	227
<i>Chugai Shogyo Shinpo</i>	184
<i>Ohsaka Mainichi Shimbun</i>	163
<i>Ohsaka Jiji Shinpo</i>	101
<i>Kobe Matashin Nippo</i>	100
<i>Kobe Shimbun</i>	76
<i>Kokumin Shimbun</i>	73
<i>Tokyo Asahi Shimbun</i>	63
<i>Jiji Shinpo</i>	51
<i>Taiwan Nichinichi Shipo</i>	9
<i>Manshu Nichinichi Shimbun</i>	9
<i>Seoul Nippo</i>	2
<i>Hochi Shimbun</i>	2
Total	1,060

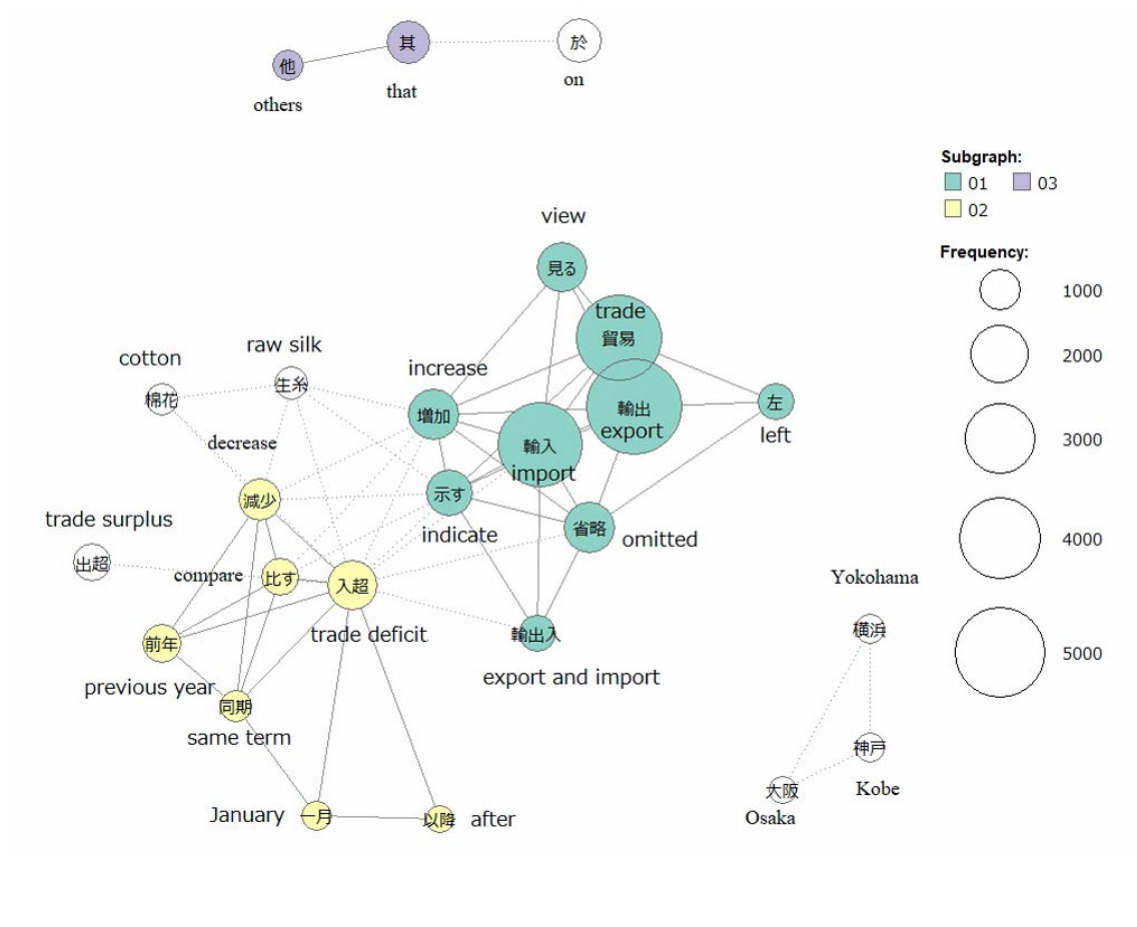
Table 3 List of words or phrases added to and excluded from the dictionary

	Japanese Word	Meaning in English
Added	Shina	China
	yenka	yen value
Excluded	zuhoari shoryaku	originally with table and chart but omitted
	ari shoryaku	something is omitted
	zuihyo	table and chart
	shoryaku	omitted
	tani	unit

Table 4 Top 20 words occurring in all the sample articles

Order	Japanese	English Translation	Frequency
1	<i>yushutsu</i>	exports	5,626
2	<i>boeki</i>	foreign trades	4,519
3	<i>yunyu</i>	imports	4,318
4	<i>zoka</i>	increase	1,599
5	<i>miru</i>	view	1,517
6	<i>kumiai</i>	association	1,493
7	<i>nyucho</i>	trade deficits	1,493
8	<i>Nihon</i>	Japan	1,438
9	<i>iru</i>	being	1,386
10	<i>shimesu</i>	indicate	1,306
11	<i>okeru</i>	on	1,159
12	<i>sono</i>	that	1,112
13	<i>Ro</i>	Russia	1,075
14	<i>gensho</i>	decrease	1,048
15	<i>kawase</i>	exchange (e.g., foreign)	881
16	<i>zennen</i>	the previous year	874
17	<i>hisu</i>	compare	865
18	<i>shucho</i>	trade surpluses	831
19	<i>kankei</i>	relationship	821
20	<i>yushutunyu</i>	export and import	796

Chart 5 The results of co-occurrence network analysis with full sample



Note : The following is the list of words appearing in the chart.

輸出	export	其	that	省略	omitted
貿易	trade (foreign)	他	others	生糸	raw silk
輸入	import	減少	decrease	綿花	cotton
増加	increase	前年	previous year	一月	January
見る	view	比す	compare	以降	after
入超	trade deficit	出超	trade surplus	同期	same term
示す	indicate	輸出入	export and import	横浜	Yokohama
於	on	左	left	神戸	Kobe
				大阪	Osaka

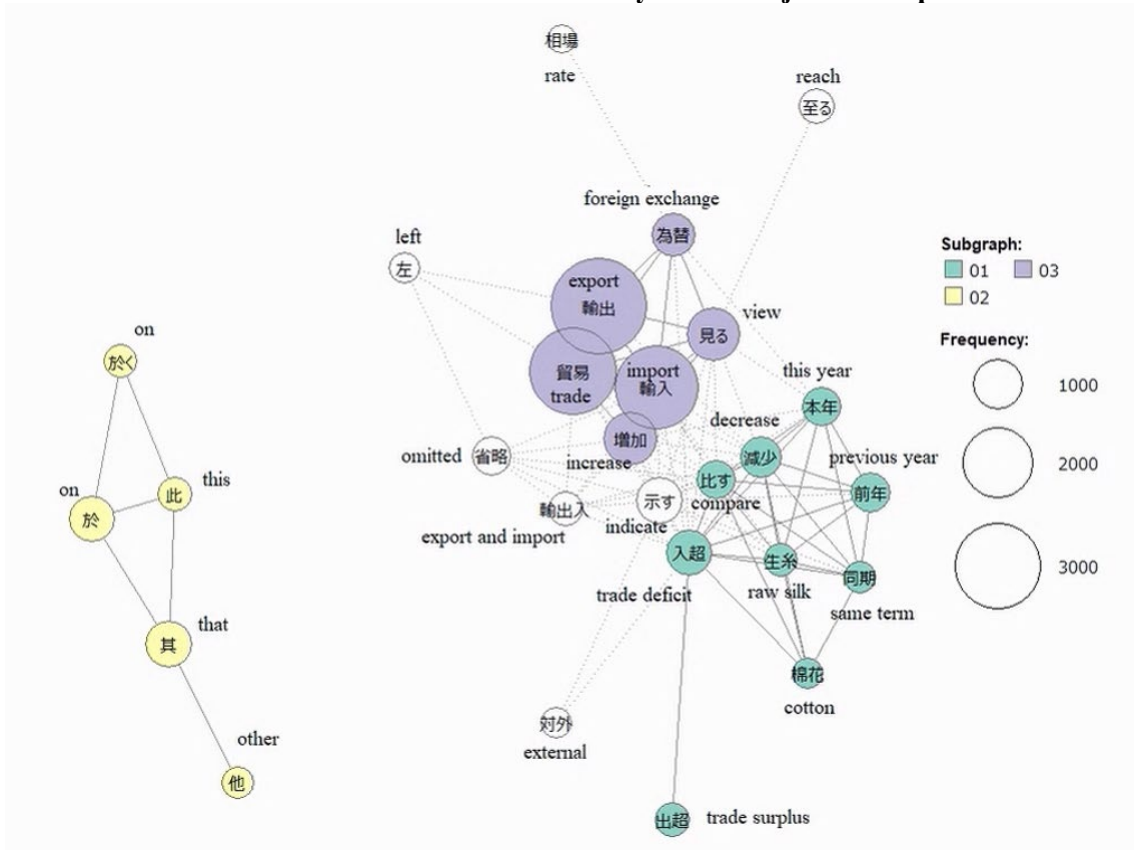
**Table 5 List of keywords indicating conditions of and fluctuations
in exports or imports**

English Term	In Japanese
increase	<i>zoka</i>
decrease	<i>gensho</i>
improve	<i>kaizen</i>
expand	<i>zoshin</i>
sluggish	<i>fushin</i>
decline	<i>gentai</i>
recover	<i>kaifuku</i>
worsen	<i>akka</i>
slump	<i>fumi</i>
turn around	<i>koten</i>
curb	<i>tebikae</i>
stagnant	<i>teimei</i>
active	<i>kakkyo</i>

Table 6 Top 20 words occurring in adjusted sample articles

Order	Japanese	English Translation	Frequency
1	<i>yushutsu</i>	exports	3,755
2	<i>boeki</i>	foreign trades	3,079
3	<i>yunyu</i>	imports	2,855
4	<i>miru</i>	view	1,160
5	<i>zoka</i>	increase	1,119
6	<i>iru</i>	being	1,002
7	<i>Nihon</i>	Japan	904
8	<i>shimesu</i>	indicate	868
9	<i>sono</i>	that	859
10	<i>nyucho</i>	trade deficits	838
11	<i>okeru</i>	on	834
12	<i>kawase</i>	exchange (e.g., foreign)	751
13	<i>kumiai</i>	association	725
14	<i>Ro</i>	Russia	707
15	<i>gensho</i>	decrease	669
16	<i>zennen</i>	the previous year	630
17	<i>sakunen</i>	last year	626
18	<i>hisu</i>	compare	598
19	<i>honnen</i>	this year	598
20	<i>kankei</i>	relationship	589

Chart 6 The results of co-occurrence network analysis with adjusted samples



Note : The following is the list of words appearing in the chart.

輸出	export	入超	trade deficit	於	on
輸入	import	出超	trade surplus	於く	on
為替	foreign exchange	示す	indicate	其	that
相場	rate	対外	external	他	others
貿易	trade (foreign)	生糸	raw silk	此	this
増加	increase	綿花	cotton		
見る	view	減少	decrease		
至る	reach	比す	compare		
輸出入	export and import	本年	this year		
省略	omitted	前年	previous year		
左	left	同期	same term		

Data Appendix

Representative articles in the sample pool

Removed articles in 3.2.6

Category 1. Articles containing only descriptions of statistical figures.

Announcement by the Ministry of Finance: In the first ten days of November, the trade at 12 international ports, including Yokohama, were exports of 53,518,000 yen, imports of 47,949,000 yen, and as a result, a surplus of 5,569,000 yen. The surplus amount declined by 3,762,000 yen from the previous period. It was due to the slump in raw silk exports caused by the delayed shipments to the US at the end of the previous month and the sluggish exports of textiles with active speculative imports of relatively cheap cotton compared to the cotton thread prices. Amounts by port are shown as follows.

[charts omitted]

Osaka Mainichi Shimbun (11 November, 1927)

Announcement by the Ministry of Finance: Trade in 12 ports, including Yokohama, in the first 10 days of February recorded an excess of imports of 153,631,000 yen, which was a deduction of imports from exports. The size of the deficit increased by 3,912,000 yen compared to the same period in the previous year. In this period, the volume of raw silk yarns increased considerably in exports compared to the previous period. There was not much difference in the volume of cotton yarn and cotton fabric. In contrast, the volume of cotton increased significantly in imports.

Chugai Shogyo Shimpo (11 February, 1928).

Category 3. Articles with the terms ‘exports and imports’, meaning trade rather than exports

At the Tokyo Chamber of Commerce, a joint committee of commerce, industry and trade departments was held from noon on the 20th. As a result of discussions on attitudes toward the international agreement on exports and imports bans and the abolition of restrictions, the subcommittee approved the draft and will submit it to the board of directors on the 22nd.

Tokyo Asahi Shimbun (22 April 1926)

Included Articles

Category 4. Articles containing words showing the conditions of exports

The Ministry of Finance announced that trade at the 12 ports, including Yokohama, in

the first 10 days of November was 53,518 million yen in exports and 47,994 million yen in imports, a surplus of 55.699 million yen, and a decrease of 376,200 yen from the previous season. This may be due to the relatively low market price of cotton compared to the market price of cotton yarn, despite the slump in exports of cotton yarn and silk fabrics, as shown in the left chart (unit: thousands of yen).

[Chart omitted]

Osaka Mainichi Shimbun (11 November 1927)

Foreign trade in the second half of Showa 4 (1929), with the government's policies aiming to lift the gold embargo, experienced a remarkable record in recent years because of a sharp decrease in cotton imports, an increase in exports of raw silk to the US, and a recovery in sales of Japanese products due to the pause of boycotts on Japanese goods in China. Due to the rush of exports and postponement of the purchase of imported goods because of the increases in the yen's exchange rates, the surplus of demand continued for a long time. As it will be the first year after the gold embargo is lifted, it is of great interest to the general public if this positive trend will continue. The forecast announced by a leading trading company is shown on the left (unit: 1,000 yen).

[Charts omitted]

Raw yarn: Considering the advance of rayon and weak market conditions in the US, exports are not expected to increase at the rate of increase in raw silk production, and about 253,000 picul [about 15 thousand ton] are estimated as in the same period of the previous year, but the amount is recovering. Due to the large number of declines in general prices, a total of 32,130,000 yen is expected assuming the price per picul is 1,270 yen (the export price of good quality low-class yarn) which is about 130 yen lower than the same period in the previous year.
...

Cotton: The number of operating weights in the first half of 1930 was more than 6.5 million, and the monthly production of cotton yarn was 266,000 bales. But the domestic market conditions will be unpleasant. The market conditions for overseas cotton products will also be sluggish because of weak exports to China due to cheap silver, internal disturbance, and boycotting of Japanese products. Exports to other destinations will not be expected to increase in quantity because of the expansion of the Chinese and Indian cotton industries, increases in tariffs, and competition with European products. Cotton imports will be 277,000 picul [about 16 thousand

ton] with a value of 355,500,000 yen.

The price of iron and pig iron will drop even if there is no significant difference in quantity. Imports will decrease due to a large amount of steel and other general product stocks, market stagnation, domestic production increase, and price decline. The total amount is 16,654,000 picul [about one million ton] with a value of 65 million yen.

In short, in the first half of 1930, trade will commence immediately after the lifting of the gold embargo. Turmoil in the yen exchange rate will be clearly eliminated, and concerns about foreign exchange will be wiped out. It is difficult to expect a turnaround in production for a while, so imports of raw materials should be limited to the extent necessary; therefore, imports should not be suddenly flooded but rather temporarily decreased. It is difficult to find any particularly bad news under the circumstances of exports destinations. Still, there should be some anxiety about the effects of the fluctuations in the US business world in addition to the political situation in China, the decline in silver prices, and tariff increases in each country. Exports are expected to decrease compared to the first half of 1929 due to the price. The value of import and export trade will also decrease compared to the same period of the previous year.

Chugai Shogyo Shimpo (24 December 1929)

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