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**Traditions and Innovations: The Rise and
Decline of the Shanxi *Piaohao* (Banks) in
the Context of Growing Sino-Foreign
Economic Interaction, the 1840s to 1910s**

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Traditions and Innovations: The Rise and Decline of the Shanxi *Piaohao* (Banks) in the Context of Growing Sino-Foreign Economic Interaction, the 1840s to 1910s¹

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Abstract

Shanxi *piaohao*, also known as the Shanxi banks, were arguably China's most important indigenous financial institutions in the nineteenth century. In a weak state with little legislation to regulate private enterprises, these privately owned banks established a nationwide remittance network by relying on its informal rules. Drawing on comprehensive primary sources, this paper is the first to examine *piaohao*'s institutional arrangement. My study shows that by designing comprehensive rules on draft enforcement, *piaohao* prevented draft defaulting and fraud problems. A strict discipline mechanism and a performance-and-tenure-based incentive structure enabled them to overcome the commitment problems of distant employees. *Piaohao* performed well financially and dominated the Chinese remittance market for a century. However, with the blow of the *Xinhai* Revolution and the rise of modern Chinese banks, they declined and disappeared collectively from the Chinese financial market in the early twentieth century.

Keywords: Micro-Business History, Business Enterprises in China, Contract Enforcement, Remittance, Commitment Problem

JEL codes: M51, N25, N85

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1. Introduction

Shanxi *piaohao*, also known as Shanxi banks, was established by merchants from Shanxi province. Shanxi, a North China province, served as the center of trade since the fifteenth century. Shanxi merchants accumulated substantial wealth and acclaimed reputations from monopolizing salt sales, controlling the long-distance trade between China and Mongolia, operating nationwide retail shops, and managing pawnshops (Liu, 2005, Chapter 1). In the early nineteenth century, when silver, the medium of exchange for interregional transactions and taxation payments, became stringent and unsafe for shipment, Shanxi merchants' business acumen and entrepreneurship encouraged them to identify a profitable business opportunity: establishing remittance firms to lower the cost of silver shipping.¹

China was in a bimetallism economy with silver ingots and copper coins as media of exchange since the late fifteenth century. The market and international trade determined the supply of silver, and its weight and purity varied with production (Yan, 2015, p.12.). The country has enjoyed silver inflows since the sixteenth century, with governments and merchants using armed escorts to transport sums of silver to settle balances and pay taxes.² However, the tide of silver influx slowed since the early nineteenth century, and the outflow of silver started in the 1820s (von Glahn, 2016, p.367.). At the same time, the widespread insurrections endangered conventional silver shipping.³ In this situation, a dye-works chain, *Xiyucheng*, which Shanxi merchants ran, started to accept requests from their clients to remit silver to their branch locations (Wu, 2016). The success of remitting silver encouraged *Xiyucheng*'s shareholder to transform the dye works into a remittance firm, *Rishengchang Piaohao*. For the first time, we see a firm naming itself a *piaohao*, a business enterprise, *hao*

号, specializing in transmitting drafts, *piao* 票.⁴ Relying on a nationwide postal service developed by Ningbo merchants, *Rishengchang* quickly won success with the unique service they provided. The triumph enjoyed by *Rishengchang* also propelled other Shanxi merchants to invest in *piaohao*, and the number of Shanxi *piaohao* boomed amid domestic rebellions and foreign aggressions.

Shanxi *piaohao* provided service for the whole society. Their customers included the Qing government, officials, the gentry, firms, and commoners (Wu, 2018). During their heyday in the 1900s, there were 26 *piaohao* in operation, with 485 branches located in 95 cities and towns (*Piaohao Archival materials*, 2002, p.485.). *Piaohao* dominated China's remittance market for a century. However, the rise of modern Chinese banks, which were organized and operated under the influence of the Western banking structure, gradually took over *piaohao*'s business, and they started to decline collectively from the early twentieth century.

Discussions about the Shanxi *piaohao* became popular soon after their decline in the 1910s. Early researchers focused on narratives of their history (Li, 1917; Wei, 1944; Tamagna, 1942; Wagel, 1915). With more historiographical sources became available, scholars started to examine *piaohao*'s relation with the government (Kong 1984), study their rise and decline (Liu,2005; Faure, 2006; Wang, 2014, 2022; Wu, 2016), or explore their accounting methods (Lowenstein, 2022). In addition to surveys from a historical point of view, other studies apply economic tools to study *piaohao*'s dual-class equity structure (Morck and Yang, 2002) or incentive mechanism (Zhou, 2008).

Although the above studies formed valuable research on the Shanxi *piaohao*, a systematic study of their institutional arrangement needs to be done. Deploying the institutional theory framework (Wallis and North, 1986; North, 1990; Williamson, 2000;

Wallis, 2022), this paper is the first to examine piaohao's institutional arrangement. It shows that piaohao's success is indispensable to its institutional arrangement in draft enforcement and employee management. We show that in a weak state which lacked the power to enforce formal rules, Shanxi piaohao designed comprehensive informal rules to reduce the risk of defaulting and fraud drafts. By combining a centralized supervising structure and a tenure and performance-based incentive structure, piaohao solved distant employees' commitment problems.

Our study refutes the conventional argument that there was no development of an independent business class in old China (Fairbank, 1992, pp. 185-6; Wright, 1988, p. 187). It shows that Shanxi piaohao mapped a unique development trajectory and institutional arrangements without overdependence on the Qing government or foreign power. The informal rules they created enabled them to protect capital, thus empowering them to establish a widespread business network and expand their service to society. This is similar to the medieval regional banks in Italy and Maghribi traders in Africa, which both deployed informal rules to operate the business and supervise distant agents (De Roover, 1963; Carnevali, 1996; Grief, 2006; Edwards and Oglivie, 2012).

My paper uses two types of sources. The archival book, *Shanxi piaohao shiliao* 山西票号史料 (Archival Materials of the Shanxi piaohao), which was published in 2000, collected almost all the available piaohao materials scattered in China. These 1,300 pages of documents chronicle piaohao's historical developments based on contemporary newspaper reports and staff recollections. It also covers contracts, regulations, dividends distributions, and lists of payments of *Dadetong*, *Xiechengqian*, and *Baofenglong piaohao* and preserves scattered business correspondence and ledgers left by *Rishengchang piaohao*. This paper relies on this book for *piaohao*'s business contracts, regulations, and payroll lists. It is worth

mentioning that since the information collected in this book is scattered, it is difficult for our study to concentrate on one or two piaohao and analyze them systematically. However, given that Shanxi *piaohao* had similar organizational structure and business practice, studying different piaohao based on existing historiographical sources still provides insights into their institutional arrangements. Besides the archival book, to evaluate piaohao's economic performance and estimate their business volume, I collected 13 thirteen annual balance sheets of the *Rishengchang piaohao*. These materials were preserved at the Advanced Library of Asia Studies, University of Tokyo.

This study proceeds in three parts. Section 2 studies how piaohao enforced contracts to reduce transaction costs. Section 3 examines piaohao's control and incentive mechanisms. Taking *Rishengchang* piaohao as a case study, section 4 examines piaohao's economic performance, i.e., business volume and profitability. To explore piaohao's relative decline compared with the rise of modern Chinese banks and foreign banks that operate in China, we compared the capital power and the numbers in operation of these three types of financial institutions.

2. Organisational Structure and Draft Enforcement

Piaohao was a single proprietorship or joint share with a dozen lineage trusts. Each *piaohao* had tens of thousands of *liang* as paid-up capital, with shareholders sharing the unlimited liability.⁵ Dissimilar to other traditional Chinese business enterprises, which combined investment and management, *piaohao* shareholders were not involved in daily operations (Kirby 1995, p.51.). Instead, they would hire a *dazhanggui* 大掌柜 (head manager) with expertise to run the day-to-day business. At the end of a fiscal year,

shareholders evaluated the manager's performance and decided whether or not to renew his contracts.

Before the first Company Law was introduced in China in 1904, piaohao operated in a business environment that was absent of commercial law. Besides this, a high population-official ratio propelled the Qing authority to design complex and expensive court proceedings to discourage people from going to the law (Chang, 1962; Wu, 2016, p.49). In this situation, *piaohao* designed comprehensive rules on draft enforcement and standardized the procedure to ensure their drafts could be accepted and enforced. A standard *piaohao* draft is a uniform invoice in triplicate: *Cungen* 存根 (counterfoil) was kept in the branch that received silver and issued the draft, *huipiao* 汇票 (draft) was given to the client, and the *piaogen* 票根 (receipt) was sent to the branch which cash draft. The draft specified the receiver's name, the branch to which the draft was sent, the amount and type of silver to be withdrawn, and how many days the client needed to wait after presenting the draft at the receiving branch. Since *piaohao* incorporated loan and deposit practices into the remittance, they created three ways to cash drafts. 'Jianpiao lifu (on-demand payment)' is the receiving branch cashes a draft upon sight of the draft; 'jianpiao chifu (postpone payment)' is the receiving branch postpones cashing a draft to a promised day and paid interest to the client. 'dianfu (advance a draft)' is piaohao loaned customers for remittance and the charged interest.

To prevent counterfeit drafts, piaohao used a special type of paper as a draft and printed delicate watermarks on their drafts. They also required each branch to have only one person to write drafts so that other branches could recognize his handwriting. They created a method, 'miya (secret signals)', which deployed ballads or poems to signify numbers and wrote them in the back of a draft corresponding to the information written on the front. When a draft is lost, the person who lost the draft is required to inform the *piaohao* and report this

to a local magistrate. *Piaohao* would announce the loss in a newspaper and file it in the *piaohao* guild. From the existing historical records, no information documented that *piaohao* was involved with commercial disputes because of counterfeiting drafts. Like all other traditional business enterprises in China, *piaohao* granted loans based on clients' reputations and did not require collaterals. From *Rishengchang*'s business letters, we found that when a client fails to pay back the loans, *piaohao* would sue the client to a local magistrate, who would issue an order to confiscate the client's assets and give to *piaohao* to repay the loss.

The closure of *piaohao* is common. From the 1820s to the 1890s, 43 Shanxi *piaohao* were established, and 19 were shut down (*Piaohao Archival Materials*, 2002, p.21, p.212, p.468.). Although among those shutdowns, only four have been recorded insolvent and defaulted on drafts, without formal rules, the government had little tact in solving *piaohao*'s default.⁶ This is evidenced when *Jiqiansheng* and *Fengyuanjiu* were found defaulting on drafts. Newspapers reported that these *piaohao*'s managers committed suicide, and the government sent soldiers to lockdown their offices. Besides this, no detailed information was recorded on how the government solved defaulting. However, after the Company Law was introduced in 1904, we found that the government mandated detailed regulations dealing with default. This is evident when they dealt with *Jinyisheng*'s default in 1909 and *Rishengchang*'s bankruptcy in 1911. As *piaohao* were registered as unlimited liability shareholders under the Company Law, the authority arrested these two *piaohao*'s managers and shareholders. They confiscated all assets, including shareholders' property, stocks, sits in other financial institutions, inventory, and silver reserves. *Piaohao* guilds were also requested to assist in the investigation. After auditing accounting books, the authority mandated procedures and schedules of repayment (*Piaohao Archival Materials*, 2002, pp.421-9, pp.517-23). This finding is consistent with Kirby (1995, p.44.), who argues that the weak Qing government

strengthened its central power by introducing modern law. Besides this, deploying a Western corporate structure positively impacted China's economy.

3. Employment, Discipline, and Incentive Mechanism

Piaohao's head manager supervised the business, hired and promoted staff members, and made other big decisions. *Piaohao* imposed a geographic-based recruitment system, and they only hired from Shanxi. A candidate was required to have two well-established guarantors to recommend him, and *piaohao* would investigate his ancestors from three generations back to reassure the candidate and his family are well-behaved. Managers were forbidden to employ their relatives to prevent nepotism, but they could be guarantors of family members who worked in other *piaohao*. Dissimilar to most Chinese men who restlessly pursued passing the imperial examination to climb the social ladder, the Shanxi people sought to improve their social status by becoming merchants. Therefore, entry to the *piaohao* was exceptionally fierce.⁷

Figure 1. Promotion process in the Shanxi piaohao

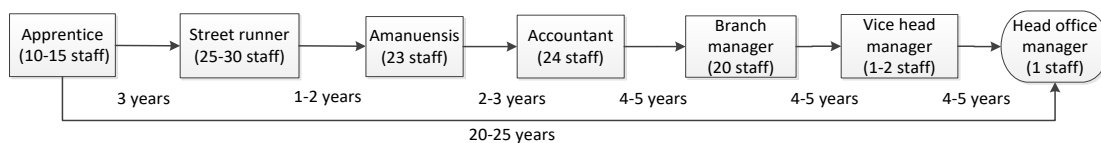


Figure 1 shows the promotion process of a *piaohao*. According to its needs, each *piaohao* usually recruited 10 to 15 apprentices each time, aged between 15 and 17, to be trained for three years. In the first year of their apprenticeship, the young men would do simple tasks and serve senior managers. At night, they learned to practice calligraphy and

abacus calculation. During the second year, the apprentices would learn more technical skills such as accounting, transcribing business correspondence, and reciting the weight and purity disparity between different types of silver. In the third year, apprentices would begin to participate in the *piaohao*'s daily operation, for instance, as assistant accountants in clearing accounts or to help as amanuenses, known as *wendu*, in transcribing business letters.⁸ After three years of apprenticeship, the head office manager would select the smartest apprentices, teach them how to do business, and then send them to the branch offices (*Piaohao Archival Materials*, 2002, pp.612-3.). *Piaohao* prioritized employees' loyalty above other qualities. If misbehavior was found and caused the loss, the employee or his guarantors were required to repay the *piaohao*. *Piaohao* merchants shared employees' performance at guild meetings and imposed collective punishment on those deposed and poached who were not treated well in other firms (*Piaohao Archival Materials*, 2002, pp.914-915.). In traditional Chinese society, merchants preferred to hire local people. Therefore, it would be costly for anyone who had cheated to enter a bank in another region (Landa, 1988). With a guild system and a collective punishment mechanism, *piaohao* transcended the limits of the single *piaohao* to monitor employees' behavior and encouraged employees to work hard and with integrity for the sake of themselves and their future career opportunities.

To centralize the management power to the head office while allowing each branch to have a certain autonomy of operation, *Piaohao* imposed an M-form structure. Each branch had 6 to 10 employees with functional units, such as accounting and marketing. Branch managers had daily operation rights under certain limited amounts. However, when they met large remittance transactions, they were required to report to the head office manager for permission. To avoid illiquidity and reduce the costs and risks of hoarding excessive silver, *piaohao* held the policy of 'zhuoyingjixu 酌盈济虚, choupizhuankuai 抽疲转快' (Dispatching silver from those with an abundance to those with a shortage, and from places

where the interest is low to those where it is high)'. This means that when a branch was abundant in silver, its manager would request other branches to send more remittance drafts and vice versa. We found that each branch sent business letters to other branches and the head office every 7 to 10 days, and it usually took 7 to 15 days to deliver a letter. *Piaohao*'s business correspondence shows that when a branch needed to reduce silver stock, it asked other branches to accept more sent drafts. However, when liquidity was low, it would ask other branches to send fewer drafts to them. The head manager punished the branch manager and his employees, who ignored his orders and other *piaohao*'s requests.⁹

Given the limited operating capital stored in each branch, submitting all business information to the head office enables the head manager to make an overall plan to increase the liquidity and profitability of the *piaohao*. At the same sharing business situations with other branches, reduced the risk of over-sending drafts to branches that have silver constraints. However, here worth mentioning that, given the state of the postal service at the time, the information received by the head office sometimes lagged and thus did not keep up to date with the local market situation. Therefore, a centralized structure may mitigate risks but could prevent *piaohao* from making risky but potentially more profitable decisions.

To substantiate its management structure and eliminate all the possible venues that might tempt misbehavior, *piaohao* designed comprehensive and strict regulations. For example, staff members were required to live and dine in the *piaohao* while on duty, and their salaries were paid directly to their families in Shanxi. They were forbidden to marry non-Shanxi women, and their family members had to stay in their hometown while on duty. If employees help other employees carry goods home, these goods should be left with the head office to register and check before being forwarded to their families. Since all the Shanxi *piaohao*'s headquarters were in three small towns, Qixian, Pingyao, and Taigu, which were

close to each other, *piaohao* would find their family members for compensation if employees misconducted.

Piaohao's highly competitive pay package offset its strict rules in disciplining employees' rules of conduct. In the Shanxi *piaohao*, an employee's income consisted of *yiziyin* 衣资银 (basic allowance), *xinjin* 薪金 (salary), and *shengu* 身股 (expertise share). The basic allowance was the monthly payment to apprentices to cover their basic expenses, ranging from 0.5 to 2 *liang* per year. The salary was paid every six months to the employee's family, ranging from 30 to 100 *liang* annually. To employees with excellent performance, shareholders would grant an expertise share, which paid the same dividends per share as the shareholders' *yingu* 银股 (capital share) at the end of the fiscal cycle. Expertise shareholders' salary was deducted from their entitled dividends when distributing dividends. If the *piaohao* had a loss in a fiscal year, expertise shareholders would only receive their wages. The *piaohao* valued one share as one *fen* and divided one into ten grades, each being called one *li* (Chen 1937, pp.87-8.).

Table 1. Descriptive Statistics of the payroll lists for *Xiechengqian* and *Baofenglong* (*liang*)

| | Number of Staff | Min | 1st Quartile | 2nd Quartile | 3rd Quartile | Max | Mean | S.d. |
|--------------------------------------|-----------------|-----|--------------|--------------|--------------|------|------|--------|
| <i>Xiechengqian</i> in 1903-6 | | | | | | | | |
| Staff with basic allowance only | 16 | - | - | - | - | - | - | - |
| Staff with salary only | 73 | 4 | 21.5 | 34 | 52.5 | 100 | 37.1 | 20.2 |
| Staff with salary and share | | | | | | | | |
| salary | 26 | 70 | 70 | 70 | 70 | 100 | 71 | 5.9 |
| shares granted | | 0.1 | 0.1 | 0.4 | 0.5 | 1 | 0.4 | 0.3 |
| dividends | | 200 | 200 | 700 | 1000 | 2000 | 776 | 549 |
| Staff with bygone share | | | | | | | | |
| number of shares granted | 5 | 0.2 | 0.3 | 0.3 | 0.6 | 0.8 | 0.4 | 0.3 |
| dividends | | 400 | 600 | 600 | 1200 | 1600 | 880 | 501 |
| <i>Baofenglong</i> in 1906-10 | | | | | | | | |
| Staff with basic allowance only | 36 | - | - | - | - | - | - | - |
| Staff with salary only | 69 | 14 | 24 | 50 | 70 | 100 | 50 | 56.57 |
| Staff with salary and share | | | | | | | | |
| salary | 25 | - | - | - | - | - | - | - |
| shares granted | | 0.2 | 0.2 | 0.6 | 0.5 | 1 | 0.4 | 0.3 |
| dividends | | 104 | 104 | 156 | 247 | 520 | 212 | 138.69 |
| Staff with bygone dividends | | | | | | | | |
| shares granted | 1 | 0.3 | - | - | - | 0.3 | 0.3 | 0 |
| dividends | | 156 | - | - | - | 156 | 156 | 0 |

Source: *Piaohao archival materials* (2002, p.605, pp.631-5, pp.1222-4.)

Notes: ‘-’ means data are not available.

Table 1 shows descriptive results for the payroll lists of *Xiechengqian* and *Baofenglong* piaohao in different fiscal years.¹⁰ As the table shows, the two piaohao are similar regarding the number of employees. In both piaohao, 15% to 25% of the employees had basic allowance only, and those staffs were usually apprentices. Half of them had a salary but no dividends. About 25% were entitled to dividends, and those employees were usually branch managers or accountants. In *Xiechengqian*, 75% of the salary-only earners had an income varied from 4 to 52.5 *liang*, with the rest earning 52.5 to 100 *liang*. Most expertise shareholders in *Xiechengqian* earned from 200 to 1000 *liang* over a fiscal period, and only 25% had more than 1000 *liang*. The pay gap ratio between the highest and lowest income earners was 1: 500.

As a newly established *piaohao*, *Baofenglong* paid 75% of the salary earners 14 to 70 *liang* and gave 25% of them 70 to 100 *liang* per annum. Over a fiscal cycle, 75% of the *Baofenglong* expertise shareholders made 104 to 247 *liang*, with only 25% earning more than 247 *liang*. On average, expertise shareholders in both *piaohao* held 0.4 shares, and a small percentage of employees could receive dividends after retirement. Although we do not have financial statements for both *piaohao*, from the historical narratives, we found that the two *piaohao* distributed different dividends might be because of their different profitability.

Table 2. Descriptive statistics of *Datetong* dividends distribution lists in 1884,1905, and 1921

| | Number of Staff | Min | 1st Quartile | 2nd Quartile | 3rd Quartile | Max | Mean | S.d. |
|-------------------------------------|-----------------|------|--------------|--------------|--------------|-------|---------|-------|
| 1884-9 | | | | | | | | |
| Staff with salary and share | | | | | | | | |
| shares granted | 20 | 0.2 | 0.2 | 0.3 | 0.6 | 1 | 0.4 | 0.3 |
| dividends | | 170 | 170 | 255 | 465 | 850 | 358 | 214 |
| Staff with bygone dividends | | | | | | | | |
| shares granted | 3 | 0.3 | - | 0.4 | - | 0.6 | 0.4 | 0.25 |
| dividends | | 255 | - | 340 | - | 510 | 368 | 129.8 |
| Profits | | | | | | | 24,723 | |
| Dividends to capital shareholders | | | | | | | 5,540 | |
| Dividends to expertise shareholders | | | | | | | 2,728 | |
| 1905-8 | | | | | | | | |
| Staff with salary and dividends | | | | | | | | |
| shares granted | 48 | 0.15 | 0.3 | 0.35 | 0.5 | 1 | 0.4 | 0.3 |
| dividends | | 2550 | 5100 | 5950 | 8500 | 17000 | 7077 | 3885 |
| Staff with bygone dividends | | | | | | | | |
| shares granted | 3 | 0.45 | - | 0.7 | - | 0.9 | 0.7 | 0.23 |
| dividends | | 7650 | - | 11900 | - | 15300 | 11616 | 3832 |
| Profits | | | | | | | 743,545 | |
| Dividends to capital shareholders | | | | | | | 176,181 | |
| Dividends to expertise shareholders | | | | | | | 231,818 | |
| 1921-5 | | | | | | | | |
| Staff with salary and dividends | | | | | | | | |
| shares granted | 35 | 0.1 | 0.1 | 0.25 | 0.35 | 1 | 0.3 | 0.3 |
| dividends | | 800 | 800 | 2000 | 2800 | 8000 | 2589 | 2199 |
| Staff with bygone dividends | | | | | | | | |
| shares granted | 5 | 0.15 | 0.35 | 0.6 | 0.75 | 1 | 0.6 | 0.3 |
| dividends | | 1200 | 2800 | 4800 | 8000 | 8000 | 4560 | 2662 |
| Profits | | | | | | | 127,578 | |
| Dividends to capital shareholders | | | | | | | 65,227 | |
| Dividends to expertise shareholders | | | | | | | 57,773 | |

Source: *Piaohao archival materials* (2002, pp.631-5.)

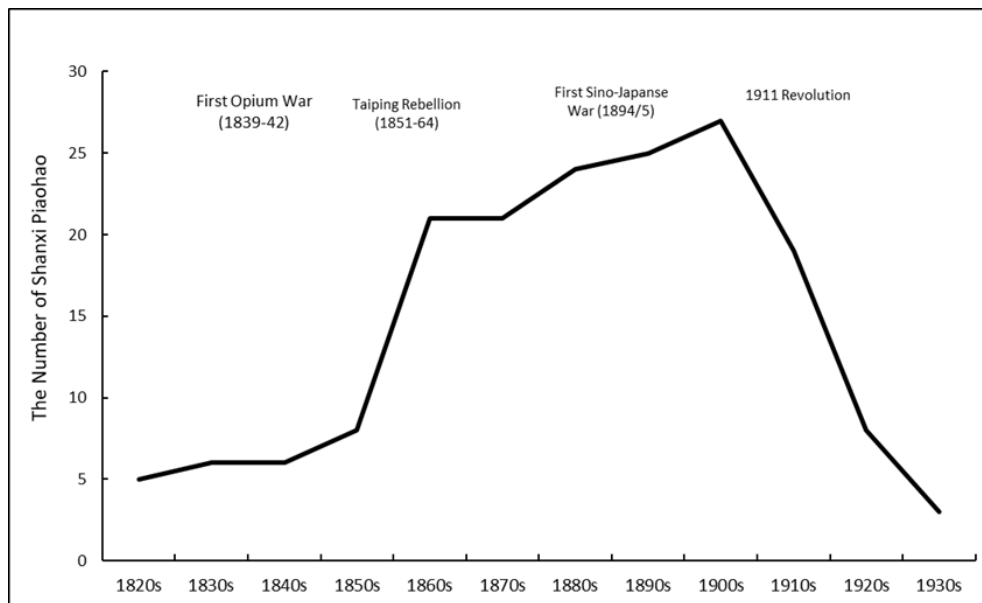
Table 2 shows the descriptive results of the *Dadetong* piaohao dividends distribution lists in 1884-9, 1905-8, and 1921-5.¹¹ The table shows that in the fiscal year of 1884-9, *Dadetong* distributed 850 *liang* per share, with 75% of the expertise shareholders earning between 170 to 465 *liang* and 25% of them making 465 to 850 *liang*. In 1905-8, when most piaohao reached the heyday in business volume, *Dadetong* dispensed 17,000 *liang* per share. Compared with 1884-9, more employees had expertise shares during 1905-8. In 1921-5, when only eight piaohao were still operating, *Dadetong* remained profitable and distributed 8,000 *liang* per share dividends.

Here worth mentioning that the entrenchment problem became discerning as *piaohao* developed. In the case of *Dadetong*, it distributed an increasing share of profits as dividends as time went by. The proportion of dividends distributed to capital shareholders in total distributed dividends declined from two-thirds in 1889 to half in 1925 (Wu, 2016, p.80). Moreover, unlike capital shareholders who usually deposited 10% of the dividends they received as re-investment, expertise shareholders only needed to put 3% to 4% of their dividends to reinvest (*Piaohao Archival Materials*, 2002, p.85.). This further deteriorated the entrenchment problem.

4. Economic Performance: Developed amid political turmoil and declined with the rise of modern Chinese banks

North (1990, pp.107-117.) argues that institutional characteristics impact economic performance. Therefore, in this section, we evaluate piaohao's economic performance and explore its decline by comparing them with modern Chinese banks.

Figure 2. Cumulative number of operating *piaohao* in each period, the 1820s to 1930s



Source: *Piaohao archival materials* (2002, pp.1278-80)

Figure 2 plots the cumulative number of operating *piaohao* from the 1820s to the 1930s. It shows that this number increased steadily from the 1820s to the 1840s. Although the Taiping Rebellion (1851-1864) caused massive economic and human capital losses, benefiting from the demand for remitting government funds, the number of Shanxi *piaohao* increased (Wu, 2016). Shanxi *piaohao* continued its growth from the 1870s to the 1900s as more treaty ports were opened under foreign gun powers. However, when a nationwide anti-imperial government revolution, known as the *Xinhai* Revolution, broke out in 1911, *piaohao* suffered massive losses from looting and robbery. As China entered a new republican era, modern Chinese banks expanded. In this situation, the number of Shanxi *piaohao* started to shrink.

Based on the business letters and financial statements of *Rishengchang* in different years, Table 3 estimates the average annual business volume, income, and profits from the 1840s to the 1900s. As the figure suggests, the remittances were consistently the backbone for the *piaohao*, with the loan and deposit businesses increasing their shares as time passed.¹²

Combining this estimation with China's GDP given by Guan et al. (2017), we find that the silver Shanxi *piaohao* remitted each year once during the 1900s was equivalent to 2% of China's GDP. Besides this, *piaohao* also had high profitability, according to our estimation.¹³

Table 3. Average annual business volume, gross income, and profits of *Rishengchang*, the 1840s to the 1900s (1,000 *liang*)

| | 1842 | 1850s | 1860-4 | 1865-9 | 1870s | 1880s | 1890-3 | 1894/5 | 1896-9 | 1900/1 | 1902-9 |
|------------------------|-------|-------|--------|--------|-------|-------|--------|--------|--------|--------|--------|
| Remittance | 4,413 | 2,046 | 559 | 2,643 | 1,724 | 2,172 | 3,756 | 3,161 | 4,165 | 1,314 | 4,673 |
| Deposit | 294 | 116 | - | - | - | - | - | - | - | - | 2,959 |
| Loan | 146 | 64 | - | - | - | - | - | - | - | - | 3,435 |
| Gross Income | 143 | 63 | 39 | 120 | - | 244 | 411 | 397 | 1066 | - | 934 |
| Profits | 112 | 29 | 25 | 79 | - | 139 | 233 | 225 | 605 | - | 163 |
| profitability | 78% | 46% | 64% | 66% | - | 57% | 57% | 57% | 57% | - | 17% |
| The number of branches | 12 | 17 | 11 | 17 | 17 | 18 | 26 | 25 | 25 | 21 | 18 |

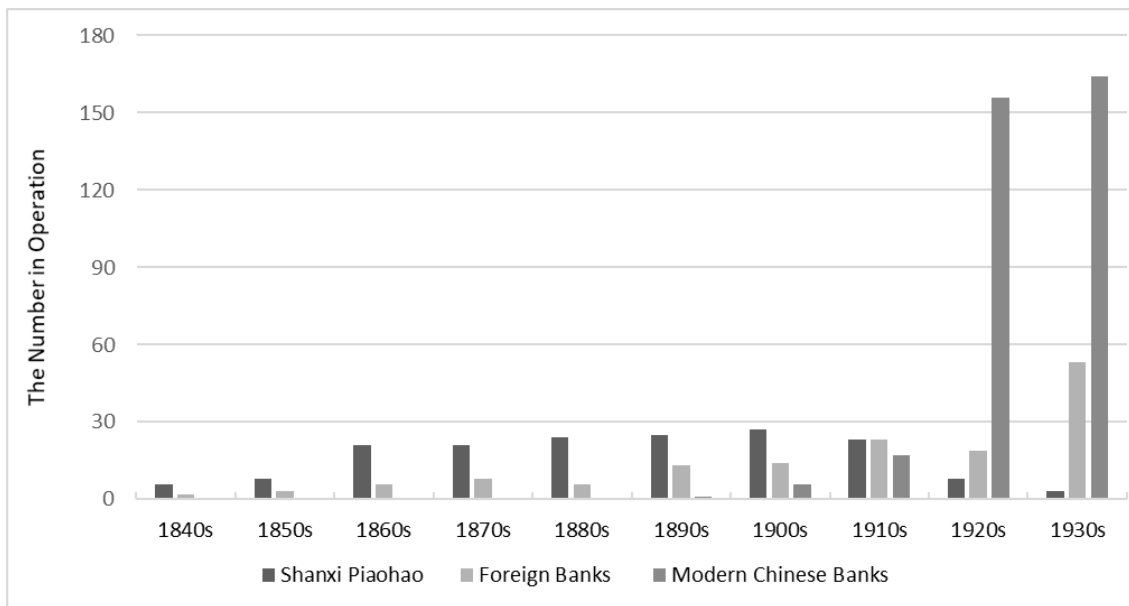
Sources: *Rishengchang* business correspondence from the 1860s to the 1900s, annual balance sheets of Yangzhou in 1867, and annual profits report of various branches in the 1890s (Piaohao archival materials, 2002, p.631; pp.833-1077;p.1214.); *Rishengchang* monthly financial statements of one unnamed branch in 1849, Qingjiangzhen branch in 1852, Jiangxi branch in 1853, Xiangtan branch in 1906, Zhoujiakou branch in 1906, Kaifeng branch in 1906, and Changsha branch in 1906 (Advanced Asia Studies Library, University of Tokyo). *Rishengchang* (Piaohao archival materials, 2002.). Notes: This paper uses the *Rishengchang* monthly financial statements, business letters, and balance sheets to estimate its average annual business volumes. First, we use *Rishengchang* branches' monthly financial statements in 1842, 1852, 1853, and 1906 to calculate a branch's average yearly business volume in the 1842, 1850s, and 1900s. Then, by combining these results and the number of branches in each period, it estimates *Rishengchang*'s total average annual business volume. We employ their business letters for periods when we do not have monthly financial statements. We first calculate the average remittance values contained in one letter, and, according to the number of letters sent by one branch in a year, we calculate the total remittance volume for one branch (Since business letters do not record its loan and deposit business, therefore, we do not estimate loan and deposit business for the period of the 1860s-1890s). Combining this result and the number of branches in each period, we estimate *Rishengchang*'s annual remittance volume from the 1860s to 1890s. '-' means data are not available.

Piaohao suffered huge losses from massive looting and atrocities during the 1911 Revolution. On average, each piaohao lost a cash reserve of 111,000 *liang* and properties valued at 25,000 *liang*, equivalent to *Rishengchang*'s annual profit in 1902-9. Besides this,

the continuous withdrawal of deposits and massive bad loans made it difficult for *piaohao* to continue the business (Wu, 2016 pp.142-144.). While Shanxi *piaohao* suffered loss, a new financial power, modern Chinese banks, emerged and sprung overall China. Established and operated by the Chinese bourgeoisie, modern Chinese banks adopted the Western banking structure to compete with foreign banks to restore Chinese financial sovereignty.

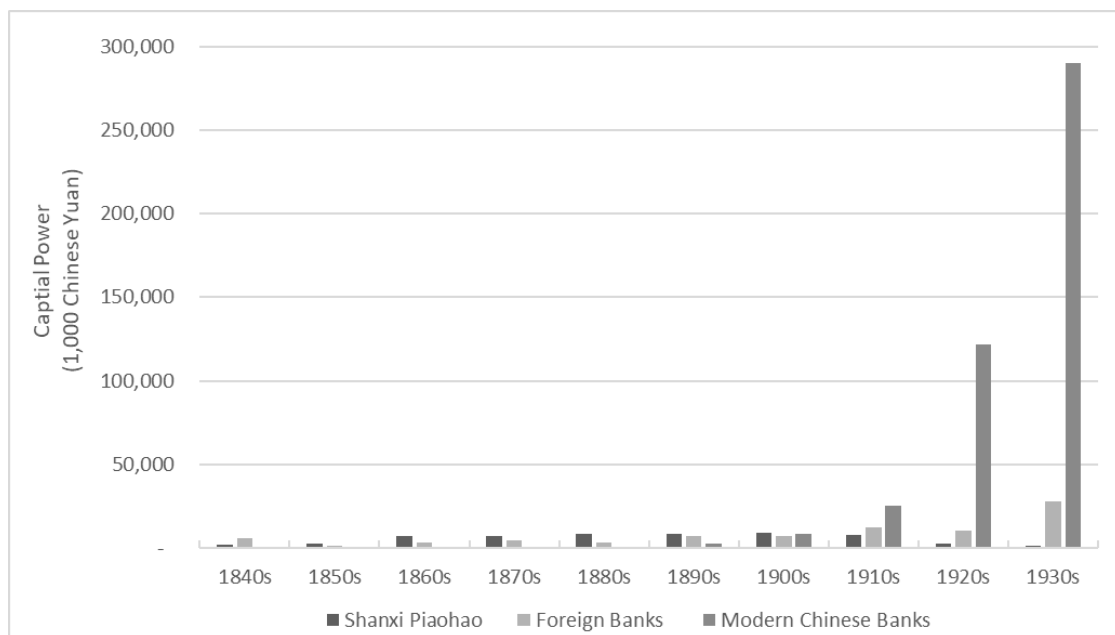
Figure 3 plots the number of Shanxi *piaohao*, modern Chinese banks, and foreign banks in operation from the 1840s to the 1930s. It can be found that Shanxi *piaohao* had an absolute advantage in the number in operation from the 1840s to 1910s, but modern Chinese banks overshadowed this number after the 1920s. This gap became even more evident when comparing the capital power between Shanxi *piaohao*, foreign banks, and modern Chinese banks, as shown in Figure 4. As the figure suggests, Shanxi *piaohao* was in the lead from the 1840s to 1880s. Foreign banks, which usually invested about 15% of their paid-up capital in China for operation, increased their capital power steadily between the 1850s and 1900s. However, the most noticeable growth is the capital power of those modern Chinese banks. In the 1900s, these banks had the same capital power as foreign banks and Shanxi *piaohao*. However, this number grew exponentially in the next three decades and outcompeted the other two types of financial institutions. Just as in its rise and decline, the *piaohao* fell almost as one. Under internal and external threats, investors in some *piaohao* declared themselves bankrupt, while other shareholders invested elsewhere and abandoned the *piaohao*.

Figure 3. The Number of Shanxi Piaohao, Modern Chinese Banks, and Foreign Banks in Operation, the 1840s to 1930s



Sources: Wu (2016, p.37.), Cheng (2003, p.34, 42.), and Wang (1999, p.16, pp.87-107, pp.224-253.)

Figure 4. A Comparison of Capital Power between Shanxi Piaohao, Foreign Banks, and Modern Chinese Banks



Sources: Wu (2016, p.37.), Cheng (2003, p.34, 42.) and Wang (1983, pp.145-174.)

Notes: we used paid-up capital at the establishment of Shanxi piaohao and modern Chinese banks to measure their capital power. We use foreign banks operating capital in China to measure their capital power. Based on their paid-up capital information (1999 p.297), we found that the paid-up capital at establishing foreign banks averaged 5 million Chinese yuan.

Based on several foreign banks' financial statements, we assume that except for HSBC, which invested all paid-up capital as operating capital, other foreign banks invested 15% of their paid-up capital in China as working capital on average.

5. Conclusion

This paper examines the institutional arrangement in Shanxi piaohao. It shows that piaohao was established to meet the increasing demand for interregional payment. In an environment with little regulation on business enterprises, piaohao designed comprehensive rules on draft enforcement and successfully reduced transaction costs in draft counterfeiting and defaulting. By combining a townsmen-based recruitment system, a collective punishment mechanism, and an M-form structure, piaohao reduced information asymmetry and moral hazard risks of far-flung employees. To further reduce the commitment problem, they created expertise shares to incentivize employees and granted those with long tenure and excellent performance.

Piaohao developed with risks and opportunities coexisting. They suffered financial losses during the *Xinhai* Revolution, which deteriorated with modern Chinese banks' expansion. Although Shanxi *piaohao* declined, their service accelerated market transactions, alleviated government financial constraints, and enabled ordinary people to transfer money. As an important part of the Chinese financial sector, the Shanxi *piaohao* was in its growth provoked and restrained by the Chinese political and economic environment. Therefore, our study of the Shanxi *piaohao* deepens our understanding of Chinese economic history in this era and sheds light on the achievements and destinies of typical Chinese merchants at the time and in the future.

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Appendix



Rishenghang's headquarters in Pingyao
Source: Photo taken by the author

Notes:

¹After paper money was abolished paper money in the 1430s, China was in a bimetallism economy with silver and copper as medium of exchange. Silver, casted as a bar or ingot, used for sizeable interregional and taxation payments. The unit account of silver was *liang*, also known as tael. 1 *liang* equal to 37 grams of silver. 1 silver sycee was known as 1 *ding* 錠, which equalled to 50 *liang*. The weight and purity of silver varied with production, and ^{supply} was determined by the market and international trade. Copper, in the form of coins, were used in daily transactions and were minted by the government. ‘*Wen* 文’ is the smallest unit account of copper coins. In Qing Dynasty (1644-1911), a string of 1,000-2,000 *wen* copper coins is called one ‘*guan* (string) 贯’.

² For example, between 1770-64 and 1830-33, China’s annual export to her leading seaborne trade partner, England, increased from 979,000 ^{silver} taels to 9 million silver taels. During the same period, the annual import grew from 470, 000 taels to 7 million taels. The annual volume of the Kyakhta Trade, which was monopolised by Shanxi merchants, expanded from 2500 rubbles to 11 million rubbles from the 1730s to the 1830s (Yan 1955 p.3.).

³ Under the peaceful Qing, China’s population doubled from 150 million in 1650 to 300 million in 1800. A greatly increased population and fragmented landholding resulted in massive numbers of famine refugees (Ebrey 1981). At the turn of the nineteenth century, the White Lotus Rebellion (1794-1804) occurred in northern China, and the Tenrikyo Religion Rebellion (1812/3) disrupted the *Zhili*, today’s Beijing and Tian, Shandong, and Henan provinces.

⁴ As early as the Tang dynasty (618-907AD), merchants could remit copper coins at government-run remittance firms, known as *zouyuan* 奏院, this policy did not last long.

⁵ ‘*liang*(两)’, also known as tael, is the unit account of silver, with one tael equal to 37 grams of silver. The silver was usually used in the form of silver ingot, also known as the sycee. One silver sycee was called one ding and equaled 1.85 kg.

⁶ These six Shanxi piaohao are *Jiqiansheng* which was closed in 1884, *Fengyuanjiu* which was closed in 1891, *Jiyisheng* which shut down in 1909, *Rishengchang*, which closed in 1911.

⁷ The commercial blooming from the seventeen-century shattered conventional Confucian doctrine, which placed merchants at the bottom of the social class, below the gentry, peasants, and artisan (von Glahn, 2016 p.306.).

⁸ Practicing calligraphy and writing business correspondence are core to Shanxi piaohao. This is because to prevent other people from faking drafts and business letters, the piaohao insisted that each branch should only have one staff member to write the drafts and thus make sure that staff in other branches could recognize his handwriting.

⁹ For example, we found from *Rishengchang*’s business letters in 1861 that head office send a punishment notification to Werong, the Suzhou branch manager, who ignored the head office order to close his branch during the Taiping Rebellion and incurred a loss. The letter states, “Among all the branches managers, only Rong did not listen to the order to close Suzhou branch and delayed my command as he wanted. His behavior resulted in one customer Xue Lanting did not pay back his loan. Once before, when Rong worked as a branch manager in Chengdu, he also did not obey the order from the head office, which left the Chengdu branch over 2,000 taels in arrears to the head office. Since Rong is not in good health at present, consider his past performance. The head office has decided to dismiss Rong and his two employees (Piaohao archival materials, 2002, p.608).”

¹⁰ *Xiechengqian* (1860-1913) was set up by seven Shanxi merchants in Pingyao town. Its paid-up capital was 60,000 *liang*, which increased to 240,000 *liang*. It paid 11,000 *liang* per *fen* to shareholders in its most prosperous period. *Baofenglong* (1906-21) was founded by two Shanxi merchants and one Qing official in Pingyao town, with paid-up capital of 260,000 *liang* (Wei, 1944, p.168.).

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- ¹¹ *Dadetong* (1884-1940) was established by a Shanxi merchant Qiao Zhiyong. Its paid-up capital 60,000 *liang* and increased to 500,000 *liang*. Compared with most other piaohao, which suffered significant losses from the 1911 Revolution and closed afterward, *Dadetong*'s shareholder Qiao injected 500,000 *liang* into the piaohao to overcome the financial difficulty. *Dadetong* operated until 1940 and was the last Shanxi piaohao that closed its business. (Wei, 1944, p.30).
- ¹² *Rishengchang* is the first Shanxi piaohao. Benefitting from the first mover advantage, it is also one of the largest Shanxi piaohao.
- ¹³ The piaohao used a single-entry bookkeeping method called the '*sizhufa* 四柱法(four pillars)'. This method consisted of four parts, namely, *shou* 收(receiving), *jiao* 交 (submitting), *cun* 存 (assets), and *gai* 该 (liabilities). We found from their balance sheets that their income includes 'received interest from loans', 'fees for the remittance', and 'income from the weight and purity of the silver'. Their expenses cover property rents, costs on employees' food, accommodation and salaries', 'amortization of bad loans', 'paid interest on deposits', 'postage and banquet expenses', and 'others' (Li,2012; Wu, 2016).