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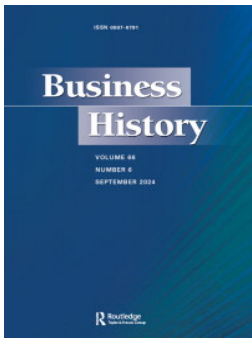
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# Governance structure, organizational form, and business performance: A study of the Shanxi *piaohao* (banks), 1820s–1930s

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## ABSTRACT

This paper studies Shanxi *piaohao*, China's first and largest private remittance banking group, established by a group of merchants from Shanxi province. Drawing on extensive primary sources, our study offers the first empirical analysis of the *piaohao*'s business organisation and performance. We show that *piaohao* thrived but were also constrained by their own private rules. In their earlier development, they successfully overcame the commitment problem by implementing a townsmen-guarantor-based recruitment system, a centralised M-form structure, and a multilateral punishment mechanism. To align the interests of shareholders and employees, they created employment shareholders and offered a competitive compensation scheme. However, *piaohao*'s governance structure became obsolete as shareholders increasingly failed to monitor head managers in the later period. A drastic increase in business volume and a changing business climate also exposed the defects of a centralised structure. As modern Chinese banks rose to prominence, the *piaohao* were gradually outcompeted and declined.

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## 1. Introduction

Shanxi *piaohao*, also known as Shanxi banks, were established by a group of private merchants from China's Shanxi province. As the largest indigenous remittance-banking group throughout the nineteenth century, Shanxi *piaohao* dominated inter-regional silver remittance against the backdrop of the demise of the imperial regime. During their century of operation, Shanxi *piaohao* remitted hundreds of millions of taels of silver to business enterprises, the government, foreign banks, the gentry, and ordinary people (Wu, 2018).<sup>1</sup> With the financial instrument, drafts (*huipiao* 匯票), they created and the service they offered, *piaohao* accelerated the flow of commodities, alleviated government financial constraints, and enabled ordinary people to transfer money (Wu, 2016).

*Piaohao* established their business by relying on private rules. Therefore, in this study, we aim to explore how *piaohao*'s governance structure and organisational form influenced their

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business performance. To address this question, we first examine the *piaohao's* ownership structure, corporate governance, organisational form, and incentive mechanisms. Next, to assess the effectiveness of their private rules, we estimate their total number in operation, paid-up capital, remittance volume, income, and profitability across various years. Before drawing conclusions, we compare *piaohao* with modern Chinese banks using various metrics, as the latter outcompeted *piaohao* after the 1910s.

By examining extensive primary sources, we show that *piaohao's* earlier growth and later decline all were both largely due to their private rules. In an environment where the government implemented a non-interventionist commercial policy, Shanxi *piaohao* designed a nexus of private rules for raising capital, governing head managers, and managing far-flung employees. *Piaohao* were established based on social connections, with most investors coming from three adjacent towns in Shanxi. Although shareholders bore unlimited liabilities, they delegated operational authority to professional managers when running the business. In a business environment where employing townsmen was the norm, *piaohao* implemented a townsmen-based recruitment and guarantor system, which reduced information asymmetry when recruiting employees. Over a century of operation, *piaohao* conducted business amid social chaos, rebellions, and foreign aggressions. To lower transaction costs when monitoring employees, they implemented a centralised management structure. To prevent distant employees' opportunistic behaviour, *piaohao* designed strict personnel regulations and imposed a multilateral punishment mechanism through native-place associations. To incentivise members of staff, *piaohao* introduced employment shares (*shenggu* 身股) and granted them to employees with long tenure and excellent performance. This incentive mechanism aligned the interests of shareholders and employees, but excessive payment became evident as *piaohao* grew.

*Piaohao's* private rules complemented each other and worked well in earlier development. However, their governance structure began to deteriorate after the 1890s. This is because the founders' descendants adopted extravagant lifestyles and increasingly neglected to oversee head managers' behaviour. Additionally, due to a drastic increase in business volume and a changing business environment, a centralised management structure resulted in head managers reaching the limits of their bounded rationality. Without any reforms, *piaohao's* organisational structure began to show diminishing returns.

Our estimations indicate that from the 1820s to the 1910s, *piaohao* experienced steady growth in the total number of operations, paid-up capital, remittance volume, and income. However, their profitability began to decline as early as the 1860s, indicating a misallocation of resources. To explore why *piaohao* lost the competition with modern Chinese banks after the 1910s, we compare them at both aggregate and individual levels. Our aggregate level comparison suggests that modern banks grew steadily when measured by the total number of in operation, paid-up capital, remittance volume, income, and profitability. Our individual level comparison with the Shanghai Commercial and Savings Bank (*Shanghai Shangye Chuxu Yinhang* 上海商業儲蓄銀行) further highlights their significant differences in business strategy, organisational form, and governance structure, with modern Chinese banks demonstrating advances in many ways.

As arguably the most important indigenous financial institution in late Imperial China, *piaohao* attracted many scholars to study it. Early researchers focused on narratives of *piaohao's* history, aiming to delineate their emergence, development, and collapse (Chen, 1937; Tamagana, 1942; Wagel, 1915; Wei, 2008 (originally written in 1944)). As more

historiographical sources became available, research on the subject diversified. For example, Kong (1984) and Zhang (1989) debated whether *piaohao*'s collapse should be attributed to their relationship with the Qing government. Morck and Yang (2010) argued that separating cash flow rights from voting rights incentivised employees to work hard but prevented the entrenchment problem. In recent studies, Qiao (2017, p. 290) demonstrated that before *piaohao* were established, Shanxi merchants had pioneered a financial innovation in North China and laid the foundation for the *piaohao*. Concentrating on the family history of Shanxi merchants, Wang (2021) argued that although *piaohao* declined collectively, some descendants of the shareholders strived to prolong family prosperity and reputation by excelling in Imperial exams and philanthropy.

The above literature formed a body of valuable study of the *piaohao*. However, several important questions on *piaohao*'s organisational structure and business performance are missing. Concentrating on these, this paper addresses the following questions: First, how were the Shanxi *piaohao* organised? Second, how did they address the principal-agent relationship between shareholders and head managers? Third, how did they solve distant employees' commitment problems? Fourth, when measured by their business performance, how efficient were these rules? Finally, why did they lose out to modern Chinese banks?

This paper contributes to the existing literature in the following three ways. First, it offers a unique case study demonstrating how traditional Chinese merchants solved the commitment problem in their long-distance business thus contributing to the study of historical and comparative institutional analysis (Carnevali, 1996; De Roover, 1963; Edward & Ogilvie, 2012; Grief, 2006; Harris, 2020; Milgrom et al. 1990; North, 1990; Root, 2023; Rowlinson et al. 2014; Williamson, 1983). Second, by applying the theory and concept of the firm (Aoki, 2010; Chandler, 1992; Hart, 2002; Holmstrom & Milgrom, 1994; Meckling & Jensen, 1976; Meyer et al. 1992), it shows how traditional Chinese business enterprises were organised and managed. Third, in line with study of Chinese firms and banking (Frost, 2022; Kang, 2016; Kong & Ploeckl, 2022; Köll, 2003; Kwan, 2005; Liu et al. 2005; Lowenstein, 2023; Lowenstein and Cao, 2023; Moazzin, 2022; Wong, 2016; Xu, 2021; Yuan & Macve, 2024; Zelin, 2005, 2013, 2019, 2022), our work reveals how indigenous financial institutions grew and declined.

This paper utilises the several types of primary sources. To examine *piaohao*'s organisational structure, we consulted Huang (2002). This archival book contains 1,300 pages of material on the *piaohao*, from which we sourced business contracts, regulation codes, correspondence, and payroll lists. To estimate *piaohao*'s business volume and profitability, in addition to Huang (2002), we collected 14 annual account books of *Rishengchang* from the Advanced Asia Studies Library at the University of Tokyo. When examining modern Chinese banks, we referred to the Economic Research Office's yearbooks (1934, 1935, 1936, 1937), which compiled data on all banks in China during those years. Additionally, we consulted archival books of the Imperial Bank of China (Financial Research Office, People's Bank of China Shanghai Branch, 1982), the Great Qing Bank (Kong, 1991), the Ministry of Posts and Communications (Su, 2005), and the Shanghai Commercial and Savings Bank (Financial Research Office, People's Bank of China Shanghai Branch, 1990) as supplementary sources. However, it is worth noting that, due to the limitation of the sources, the scattered nature of the available materials makes it challenging to focus on a specific *piaohao*. However, Shanxi *piaohao* had similar organisational forms, therefore, using different case studies from the existing historiographical sources still provides insights and implications on how they were organised, managed, and performed.

## 2. Political, socio-economic, and legal context

Before Shanxi *piaohao* were established, there was no financial intermediary that specialised in remittances.<sup>2</sup> Networks of trade and markets drew support from various financial institutions, which all provided different functions. At the national level, there were native banks and credit-debt bureaux (*zhangjū* 賬局) carrying out deposit and loan functions and issuing silver notes (*yinpiao* 銀票) for local circulation (Lowenstein, 2023). Low-value copper coins, minted by the current and previous political regimes, were used in daily transactions. High-value silver, acquired through maritime trade and varying in shape, purity standards, and weight, was used for large transactions and taxation payments (Qiao, 2017, p. 300). To send silver over long distance merchants had to hire armed escorts for transportation, the government needed to use the army, and ordinary people had to ask their acquaintances to do them a favour.

Benefiting from their centuries of experience as traders, financiers, and retailers, Shanxi merchants mastered the language of money. They knew how to identify silver's authenticity, weight, and purity level, and recast silver in private mints, determining the exchange rate (Qiao, 2017, p. 297). When doing business, Shanxi merchants faced an imbalanced money stock. South and coastal areas had an advantageous position of having relatively adequate species, while the frontier north confronted the condition of species insufficiency. To solve this problem, Shanxi merchants issued regionally circulated paper money and promissory notes in the frontier region. All these experiences laid the foundation of the *piaohao* (Lowenstein, 2023; Qiao, 2017, pp. 297–300).

From the late eighteenth century, traditional silver shipping became increasingly dangerous. The empire began to suffer from acute ecological deterioration caused by a growing population (Rowe, 2022, p. 50). Rising unemployment, insufficient food supplies, and declining per capita GDP ignited widespread social unrest (Goldstone, 2016; Hao & Xue, 2017; Rowe, 2022; von Glahn, 2016, pp. 348–398). In a socioeconomic environment with grave economic performance and social turmoil, together with an imbalanced money stock between North and South, the demand for an efficient financial instrument to settle long-distance payments became urgent. It was in this situation that the first Shanxi *piaohao*, *Rishengchang*, was established in the 1820s. For the first time, we see a firm naming itself a *piaohao*, a business enterprise (*hao* 號) specialising in transmitting drafts (*piao* 票).

During the Shanxi *piaohao* operation, the Qing Empire lived through a series of political upheavals and economic turbulence (McDermott, 2022; Rowe, 2022; von Glahn, 2016, pp. 348–399). The catastrophic Taiping Rebellion broke out in the 1850s and brought massive economic, political, and social consequences. It dismantled kinship networks and destroyed the most prosperous cities in the Lower Yangzi River, with at least 17 million people died (Hao & Xue, 2017). During more or less the same period, the Nian Rebellion (1851–1868) broke out in central China, and the Muslim Hui Rebellion (1856–1873) occurred in Yunnan, a southwestern province.

Besides the domestic rebellions, the Qing state also confronted successive military aggressions from the Western powers, which aimed to expand their global trade with China through military force. Since the late 1830s, China was defeated by Great Britain, France, America, Russia, and later Japan and was forced to sign several treaties. These treaties permitted Chinese ports previously closed to foreign traders to trade and invest, with low tariffs on imports to China. Foreign nationals were allowed to establish their courts and were exempt

from Chinese legal jurisdiction (Keller & Shiue, 2022, p. 428; Ma, 2011). With the decay of the Qing government's political sovereignty, China entered an era of ever-increasing commerce with the rest of the world (Keller & Shiue, 2022, p. 428). Based on Wu's (1983) conservative estimate, the value of domestically traded commodities in 1840 was 349,260 taels of silver, equivalent to more than a third of the government tax revenue of that year.<sup>3</sup>

*Piaohao* operated in a legal environment where the Great Qing Code (*Da Qing lüli* 大清律例) provided judicial protection for business activities. The vitality of the Qing Code was maintained through customary rules and norms that operated holistically and mirrored the society's values (So and So, 2022, p. 420). The Qing Code did not contain specific business partnership and contract provisions, however, the principles were embedded in different statutory provisions to maintain the stability of social order (Fuma, 2007; Qiu, 2018; So and So, 2022, pp. 422–429).<sup>4</sup> Although the Qing state ensured the litigation rights of all people and business entities, the litigation process could be complicated and costly.<sup>5</sup> Moreover, to achieve the Confucian ideal of a society free of litigation (*wusong* 無訟), local magistrates also consciously sought to prevent litigation by promoting community-based mediation.<sup>6</sup> In a business environment where extra-judicial and judicial methods operated simultaneously, formal law shaped and promoted a functional regulatory environment, while informal rules and norms were formed by kinship and native towns (So and So, 2022, pp. 422–429; Zelin, 2013, 2022).

### 3. Business organisation of the Shanxi *piaohao*

#### 3.1. Ownership structure

*Piaohao* were formed as single proprietorships or partnerships with unlimited liabilities (Chen, 1937, p. 80). To set up a *piaohao*, shareholders first needed to draft a contract with the shareholders' names and the paid-up capital recorded. To open the business *piaohao* merchants were required to find two to three other *piaohao* as their guarantors and submit the necessary documents to the circuit intendants (*daotai* 道台), the chief magistrate of an imperial circuit, for approval. After investigating the background of shareholders and reviewing the business plan, the circuit intendants would decide and issue a certificate (*tie* 帖) as approval (Chen, 1937, pp. 79–80; Huang, 2002, p. 586).

A *piaohao's* total capital comprised the paid-up capital (*zhengben* 正本) and reserve capital (*huoben* 获本 or *tongshi* 統事). The paid-up capital is the capital invested by the shareholders that entitled dividends. As shows in Table 1, the paid-up capital of each *piaohao* at establishment varied from 34,000 to 240,000 taels. Compared to the paid-up capital at the time of establishment, the paid-up capital of all eight *piaohao* increased by one to seven folds by the time of closure. To increase the scale of operating capital without changing the equity structure, *piaohao* created reserve capital. This meant that when distributing dividends, all shareholders were requested to deposit 10% to 15% of their dividends with the *piaohao* as reserve, and these sums earned interest but could not be withdrawn at will. To align the interests between shareholders and employees while preventing loss of ownership, *piaohao* designed a dual equity structure consisting of capital shares (*yingu* 銀股) and employment shares (*shengu* 身股). Capital shares were owned by investors with voting rights, while employment shares were granted to employees with excellent performance (Morck & Yang, 2010).

From their partnership contracts, we found that *piaohao* investors included lineage trusts (*tang* 堂), individuals, and business enterprises, with lineage trusts being the majority.



**Table 1.** Ownership structure of eight Shanxi *piaohao*.

	Year of establishment	Paid-up capital at establishment (1,000 taels)	Paid-up capital at closure (1,000 taels)	Reserve capital (1,000 taels)	The number of investors at establishment	The number of investors over time
<i>Weifenghou</i> 蔚豐厚	1826	100	280	–	1	–
<i>Weishengchang</i> 蔚盛長	1826	120	240	–	2	–
<i>Weitaihou</i> 蔚泰厚	1826	240	350	–	1	22 <sup>c</sup>
<i>Tianchengheng</i> 天成亨	1826	70	156	28 <sup>a</sup>	6	–
<i>Zhichengxin</i> 誌成信	1820s–50s	34	240	–	–	21 <sup>d</sup>
<i>Xiechengqian</i> 協成乾	1860	60	180	–	7	13 <sup>e</sup>
<i>Dadeheng</i> 大德恆	1881	60	260	–	4	–
<i>Dadetong</i> 大德通	1884	100	350	120 <sup>b</sup>	5	1

Sources: Huang (2002, pp. 581–585; pp. 638–665; p. 780); Wei (2008, pp. 15–27). ‘a’ is the year the reserve capital was recorded, 1889. ‘b’ means the year the reserve capital was recorded, 1908. ‘c’ is the year that the number of investors recorded, 1879, ‘d’ is the year that the number of investors recorded, 1873. ‘e’ is the year the that the number of investors recorded, 1906. ‘-’ means information unavailable.

As Table 1 suggests, the number of investors for each *piaohao* varied and a couple of *piaohao* experienced changes in their ownership structure. To spread risk and facilitate connections among the *piaohao*, some investors invested in multiple *piaohao* simultaneously. When there was a change in the ownership structure, shareholders were notified, and a new copy of the shareholder list was sent to all shareholders. Since most *piaohao* shareholders were from the neighbouring towns of Qixian, Taigu, and Pingyao, social connections among them enhanced trust, thereby mitigating the risks associated with uncertainty.<sup>7</sup>

### 3.2. Corporate governance

Unlike most other traditional Chinese business enterprises, which combined investment and management (Kirby, 1995, p. 51), *piaohao* separated ownership and control. Shareholders delegated all operational rights to head managers (*zongli* 總理 or *dazhanghui* 大掌櫃). Since Shanxi merchants emphasised loyalty to the brotherhood, the shareholders believed in a head manager’s character and ability when they appointed him, and the head manager worked hard to repay the shareholders’ trust (Huang, 2002, pp. 593–595). It was usually at the end of a financial year, usually two to four calendar years, shareholders would evaluate the head manager’s performance and decide whether to extend his contract (Chen, 1937, pp. 78–89).

Under this governance structure, the success of a *piaohao* lay in the head manager’s morality and competence. From the biographies of the *piaohao* head managers, we discovered that shareholders typically selected head managers through two avenues. The first route involves internal promotion within the *piaohao*. Head managers ascended from deputy head managers to head managers upon the retirement or demise of their predecessors.<sup>8</sup> The second route involves recruiting retired employees from other *piaohao* or poaching talent from competing institutions.<sup>9</sup> Having head managers’ previous work record allowed shareholders to evaluate head managers’ ability, thereby reducing the agency problem (Hermalin, 2013, pp. 734–738).

During their earlier development, namely between the 1820s and the 1880s, *piaohao* shareholders were entrepreneurial and were able to monitor head managers’ performance. Therefore, the agent relationship were stable. Based on the existing evidence, we have found



that during the prosperous years, many *piaohao* head managers created significant wealth for shareholders and served until their passing (Huang, 2002, pp. 562–577). However, in its later stages, many descendants of the shareholders became addicted to opium, lived extravagantly, and left the head managers to operate the *piaohao* without any oversight (Huang, 2002, pp. 771–779). As many *piaohao* shareholders started to fail to monitor head managers' behaviour, a governance vacuum emerged in *piaohao*'s principal-agent relationship. This is evident from instances such as *Rishengchang*'s head manager Guo Dounan running away when the *piaohao* faced a squeeze in 1911, and *Weifenghou*'s head manager Wang Xinghuan covering up a branch manager's embezzlement in 1915 due to their close personal relationship (Huang, 2002, p. 519; Li, 1917, p. 286).

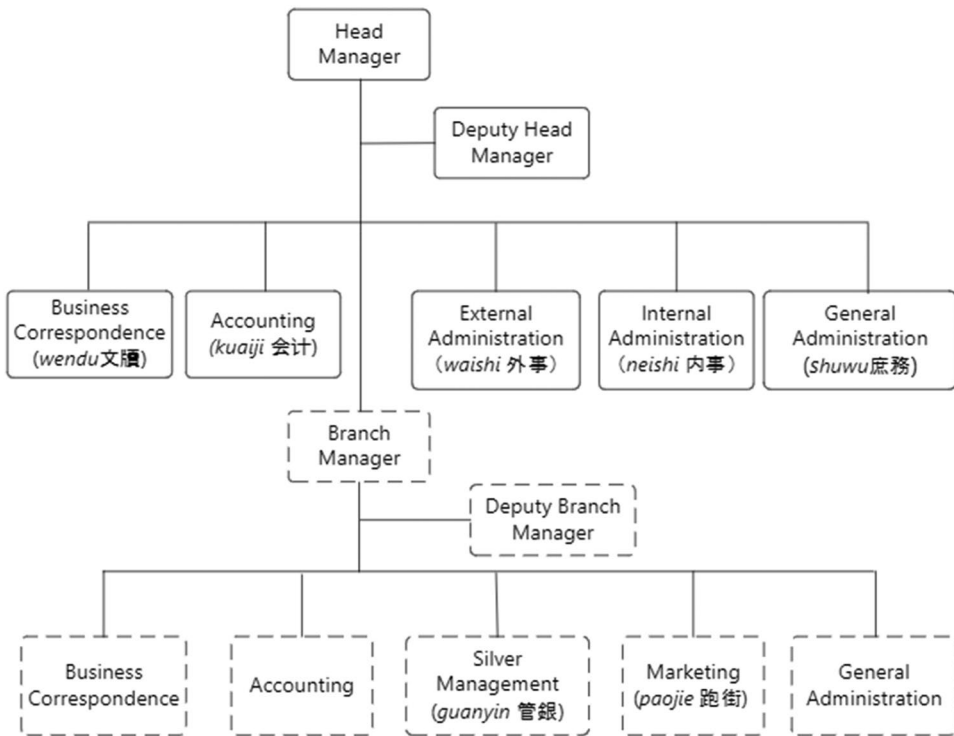
### 3.3. Organisational form

We found that the Shanxi *piaohao* had a centralised M-form structure. Unlike the typical M-firm, where branch managers are given operational and decision-making rights, causing the head manager to risk losing control over the firm, the *piaohao*'s head managers retained supreme authority over the entire *piaohao*. Branch managers were delegated certain authority such as monitoring the accounts and taking remittance business under certain limited amounts. However, when met with large remittance transactions, they were required to report to the head manager for permission. The orders from the head managers were delivered through a business correspondence system, with each branch sending business letters to other branches and the head office every seven to ten days (Huang, 2002, pp. 595–602).

From the business letters of *Rishengchang*, we found that the head manager punished branch staff who ignored his orders and other *piaohao*'s requests. For example, in 1861, the head manager sent a dismissal notification to Werong, the Suzhou manager, who ignored the head office's order to close his branch during the Taiping Rebellion and incurred a loss. On 24th April, 28th April, and 13th May 1862, the head office sent three letters to warn the Guangzhou manager who had contravened the policy from the head office and continued to send remittance drafts to the Kaifeng where there was a severe shortage of silver. The head manager insisted that if Guangzhou continued to flout the orders from the head office, he would be punished for violating the firm's regulations (Huang, 2002, pp. 853–854).

*Piaohao*'s vertical authority reduced coordination costs and negotiation costs, thereby lowering transaction costs. From the information on 43 Shanxi *piaohao*, we found that most of them operated without any defaults until the outbreak of the 1911 Revolution. However, given the state of communication—where delivering a letter typically took 15 to 80 days before the spread of the telegraph in the 1880s (Tsai, 2015; Huang, 2002, p. 14)—a centralised organisational form could result in head managers and branch offices receiving delayed information. Such incomplete market information could negatively impact the head manager's decision to manage the business and transactions (Figure 1).

Before the 1890s, most *piaohao* operated on a medium scale and were free from competition from modern Chinese banks. However, as China became more integrated with international trade after the 1890s and bore an ever-increasing amount of indemnity *piaohao*'s business increased dramatically (Huang, 2002, pp. 771–779). To meet the new financial needs, modern Chinese banks started to set up, and foreign banks expanded their business into China's domestic and international remittance market (Wang, 1983, p. 188; Moazzin, 2022). As *piaohao* head managers started to face a more complicated business environment but



**Figure 1.** *Piaohao's* organisational structure.

Sources: Compiled based on Chen (1937, pp. 80–84).

spent most of their time in remote towns in Shanxi, they gradually encountered the limits of their bounded rationality. This is evident when *piaohao* confronted competition from modern Chinese banks in the 1900s. Although branch managers in various native-place associations wrote round to the head managers, urging them to reform the *piaohao* by sending employees to study western banking practice and pooling capital to form a joint-stock bank, head managers rejected these proposals. According to some *piaohao* employees, this decision not to form a joint-stock bank was a fatal mistake, leading *piaohao's* decline (Li, 1917, p. 79).

A *piaohao* usually had 120–170 employees. Depending on the business scale, each branch had 5–20 employees. To regulate distant employees, they designed comprehensive and strict regulation codes to eliminate all possible venues that might tempt staff members to misbehave. From the regulation codes of the *Dadetong*, we found that the 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 (Huang, 2002, pp. 595–602). Requesting employees' families to stay in Shanxi proved successful in regulating employees and confirms the theory that the use of hostages to support credible commitments is widespread and economically important (Williamson, 1983). Since imperial China's legal system had codified laws on debtors' obligations and debts were regarded as the collective responsibility of the family (Ng, 2015), the efficiency of these regulation codes was guaranteed.

Like other sojourn merchants, the Shanxi *piaohao* established native-place associations (*hanghui* 行會) in their business centres. Native-place association had detailed regulations regarding its operation. To ensure that those who cheated received punishment, *piaohao* shared employees' performance through the native-place associations and imposed collective punishment on those deposed (Huang, 2002, pp. 914–915). Referring to the *Rishengchang* correspondence in 1895, we found that employees' behaviour was monitored, and private orders were implemented through the native-place associations. When *Rishengchang* Tianjin branch employee Wang Yurui absconded with 1,870 taels of silver, other employees arrested him and detained him in the branch. The Tianjin branch manager suggested that the head office send Wang to the local magistrate for conviction. However, the head manager replied that since Wang had paid back the silver he stole, after discussing it with the other head managers, they decided it would be inconvenient to send him to the local magistrate and might cause other trouble. Therefore, they chose to punish him based on their own regulations (Huang, 2002, pp. 914–915).

Since traditional Chinese merchants preferred to hire their natives, it was costly for anyone who had cheated to enter a bank in another region (Landa, 1988). The collective punishment mechanism designed by Shanxi *piaohao* is similar to that of the Maghribi traders (Grief, 2006). However, *piaohao* differed in that they had a hierarchical authority structure to complement the horizontal multilateral punishment mechanism, both of which worked together to lower the risks of moral hazards and opportunistic behaviour among employees.

### 3.4. Personnel arrangement and incentive mechanism

*Piaohao* imposed a geographic-based recruitment system and only hired from their native towns in Shanxi. Based on its needs each time, each *piaohao* admitted five to 15 apprentices, aged 15 to 17, and trained them for three years before appointing them as formal staff members. To become an apprentice, the candidate was required to have two well-established guarantors to recommend him and compensate for the *piaohao* if the candidate was dishonest and caused a loss in the future. During the apprenticeship, apprentices needed to learn to practice calligraphy, calculate using an abacus, and appraise the weight and fineness of different types of silver (Huang, 2002, pp. 602–612). After passing several assessments, apprentices could become formal staff members. In an environment of uncertainty, *piaohao*'s employment policy increased information disclosure, reduced information asymmetry among employees, thereby reducing operational risks.

As shown in Figure 2, employees started their careers as street runners (*paojie* 跑街), whose job was to collect marketing information and deal with clients' queries. Those with outstanding performance could become a silver appraiser (*guanyin* 管銀) or an operation administrator (*siwu* 司務). The next level of promotion would be a correspondence writer (*wendu* 文牘) or an accountant. Once an employee was promoted to this level, he was regarded as a senior staff member (Huang, 2002, pp. 591–592; pp. 611–614). Promotion from a street runner to head manager typically took 25–30 years. A promotion structure based on long tenure increased employee loyalty to the *piaohao*. To prevent nepotism, managers were forbidden to employ their relatives to prevent nepotism. To avoid favouritism and give branch managers a broader understanding of the whole operation of *piaohao*, branch managers also rotated to various locations.<sup>10</sup>

*Piaohao* designed a competitive compensation scheme to incentivise employees. An employee's wage consisted of a basic allowance (*yiziyin* 衣資銀), salary (*xinjin* 辛金), and

employment share. The basic allowance was the monthly payment to cover employees' basic expenses, and the salary was paid to the employee's family (Huang, 2002, pp. 604–605). To have employment shares, employees typically needed to work for the *piaohao* for more than three consecutive fiscal years with excellent performance. Based on the head managers' recommendations, capital shareholders would then decide whether to grant the employees' shares. A few retired employees or the families of deceased employees with a history of good performance were also entitled to retirement shares (*gugu* 故股) for three fiscal years. Since the *piaohao* aimed to maintain a 3:2 ratio between capital shares and employee shares, non-shareholder employees could only earn shares when existing employee shareholders deceased or left the *piaohao* (Huang, 2002, p. 583).

Table 2 shows the descriptive results of *Xiechengqian* and *Baofenglong* payroll lists. It can be observed that the two *piaohao* had a similar number of employees and payment structures. Between 15% to 25% of the employees received a basic allowance, and about half had a salary but no dividends. Among the 25% of the employees entitled to dividends, they were usually branch managers or accountants. Since *Xiechengqian* distributed more dividends per share than *Baofenglong*, its employment shareholders earned much more than the latter.

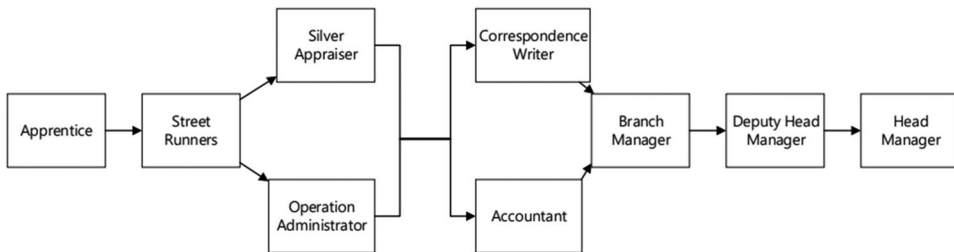


Figure 2. Promotion process in a Shanxi *piaohao*.

Source: Huang (2002, pp. 591–592; pp. 611–614); Chen (1937, pp. 80–84).

Table 2. Descriptive statistics of the payroll lists for *Xiechengqian* and *Baofenglong* (tael).

	The number of Staff	Min	Median	Max	Mean	S.d.
<i>Xiechengqian</i> in 1903–1906						
Staff with basic allowance only	16	–	–	–	–	–
Staff with salary only	73	4	34	100	37.1	20.2
Staff with salary and employment share	26					
Salary		70	70	100	71	5.9
Shares granted per employee		0.1	0.4	1	0.4	0.3
Dividends		200	700	2000	776	549
Staff with retirement share	5					
Shares granted per employee		0.2	0.3	0.8	0.4	0.3
Dividends		400	600	1600	880	501
<i>Baofenglong</i> in 1906–1910						
Staff with basic allowance only	36	–	–	–	–	–
Staff with salary only	69	14	50	100	50	56.57
Staff with salary and employment share	25					
Salary		–	–	–	–	–
Shares granted		0.2	0.6	1	0.4	0.3
Dividends		104	156	520	212	138.69
Staff with retirement share	1					
Shares granted per employee		0.3	–	0.3	0.3	0
Dividends		156	–	156	156	0

Source: Compiled based on Huang (2002, p. 605; pp. 631–635; pp. 1222–1224). Notes: '–' means data are not available.

Table 3 compares *piaohao*'s wages with those of other professions. It suggests that for a *piaohao* staff with a salary only, his annual wages were much higher than a farm worker. For a *piaohao* employee with both a salary and employment share, his earnings were higher than that of the gentry who worked as secretarial assistants to magistrates or teachers at private colleges. This comparison confirms that *piaohao* offered competitive salaries to its staff, aligning with historical evidence that indicates fierce competition for entry into *piaohao* due to its generous remuneration (Wei, 1944, p. 35).

To examine how a *piaohao* distributed dividends over time, Figure 3 plots *Dadetong*'s profits and dividends distribution in three different fiscal years. As the figure suggests, the *piaohao* experienced significant profit growth from 1884 to 1908, followed by a shrinkage in 1925. Over these four decades, there was a shift in profit distribution favouring employee shareholders, with the ratio of capital share to employment share decreasing from 3:1 to 2:5, and then returning to 1:1. As the above analysis suggests, although *piaohao*'s incentive structure aligned the interests of employees with those of shareholders, overpaying became apparent over time.

## 4. A comparison between the Shanxi *piaohao* and modern Chinese banks

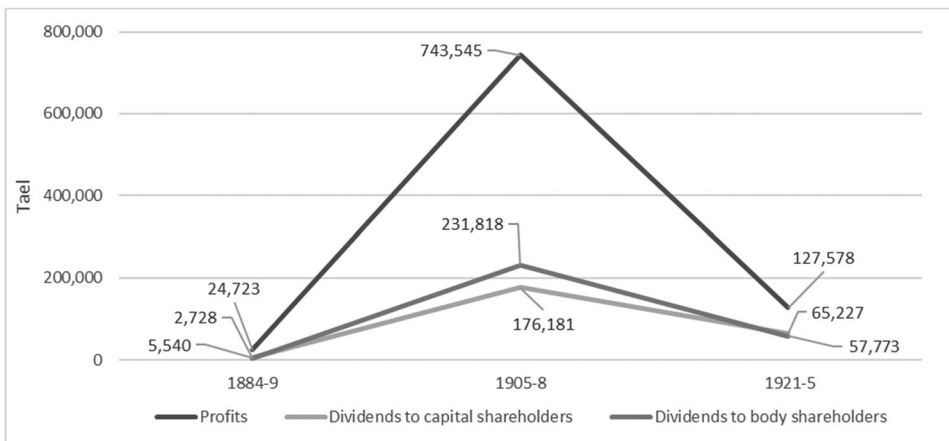
### 4.1. Aggregate level comparisons on business performance

To evaluate the efficiency of the *piaohao*'s private rules, we placed them into a comparative framework with modern Chinese banks, which began to outcompete *piaohao* after the 1910s. We compare these two types of financial institutions at aggregate levels, estimating

**Table 3.** A comparison of the nominal annual average wage of different professions in late Qing China (tael).

	<i>Piaohao</i> staff with salary only	<i>Piaohao</i> staff with salary and share	Gentry (Secretarial assistants/Teacher)	Unskilled labour	Farm worker
1870s	–	–	–	28.8	–
1880s	–	–	100–400	–	–
1890s	–	–	–	–	–
1900s	43	494	–	38.4	14.4

Source: Chang (1962, pp. 75–89); Allen et al. (2011); Huang (2002, p. 605; pp. 631–635; pp. 1222–1224). Note: '–' means data are not available.



**Figure 3.** Nominal profits and dividends distribution in *Dadetong* (tael).

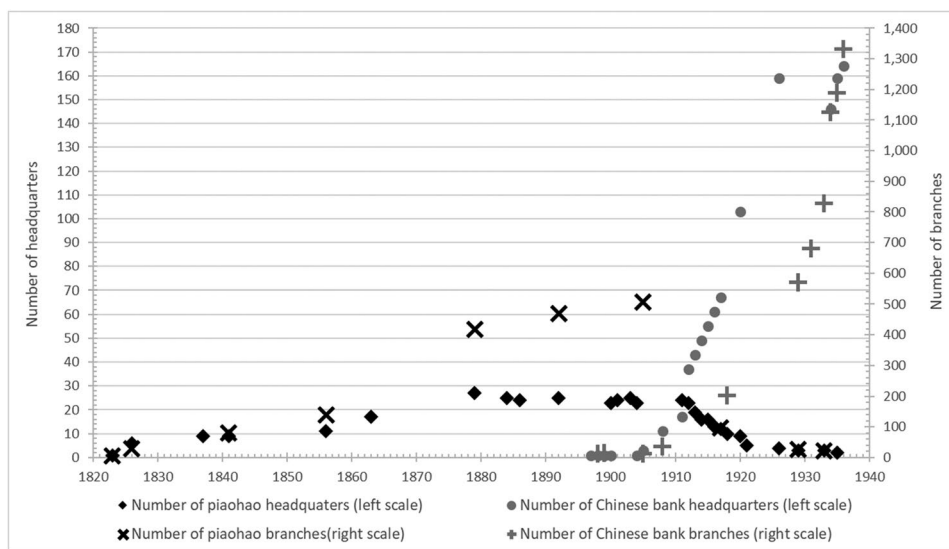
Source: Compiled based on Huang (2002, pp. 631–635).

their total number of headquarters, branches, paid-up capital, remittance volume, income, and profits.

Figure 4 compares the total number of headquarters and branches between Shanxi *piaohao* and modern Chinese banks in different years. As the figure shows, *piaohao* headquarters increased steadily from one in 1823 to nine in 1841. This growth continued between the 1850s and 1880s, before stabilising in the 1890s. *Piaohao*'s success stopped in 1911, when the 1911 Revolution, also known as *Xinhai* Revolution, broke out. Unlike previous political disturbances, the 1911 Revolution overthrew China's last imperial regime and established a Republican government. During the enduring lootings and chaos, *piaohao* suffered colossal losses. From a joint letter that twelve Shanxi *piaohao* presented to the new government, Wu (2016, pp. 142–160) estimated that during the revolution, each of the twelve Shanxi *piaohao*, on average, lost a cash reserve of 111,000 taels and properties valued at 30,000 taels. After the revolution, only 10% of these *piaohao*'s loans had been recovered.

The number of *piaohao* headquarters declined drastically after the 1911 Revolution, and this decline continued over the next two decades. In 1936, the last two Shanxi *piaohao*, *Dadetong* and *Dadeheng*, scaled down their operations and transformed into native banks.

After the establishment of the first modern Chinese bank, the Imperial Bank of China, in 1897, no new banks were founded for several years. However, this changed in 1905 when



**Figure 4.** A comparison of the number of the headquarters and branches between *piaohao* and modern Chinese banks.

Source: Huang (2002, p.15, p. 21, pp. 38–43, pp. 212–218, pp. 547–550, and pp. 557–561, p. 618, pp. 841–847, and pp. 860–1100); Economic Research Office (1934, p. A2); Economic Research Office (1935, p. A3); Economic Research Office (1936, pp. A23–A24); Xie (2000, p. 89, p. 321); Cheng (2003, p. 250); Kong (1991, pp. 109–124); Su (2005, pp. 129–133). Notes: Dissimilar to the total number of headquarters, which we sourced from Huang (2002), we estimated the total number of branches for the Shanxi *piaohao*. Appendix 1 provides branch figures for various *piaohao* we obtained. Based on Appendix 1, we first estimated the average number of branches that one *piaohao* we obtained. We then multiplied this value by the total number of headquarters in that year to obtain the total number of branches. '-' means data are not available.

the number began to increase exponentially. In contrast to the sharp decline of the Shanxi *piaohao* after 1911, modern Chinese banks nearly quadrupled between 1911 and 1917. By 1917, the total number of modern Chinese banks had surpassed the peak number of *piaohao*. This growth momentum continued in the following decades, reaching 164 in operation by 1936.

Similar to the growth pattern of headquarters, the total number of *piaohao* branches grew from fewer than a hundred in the 1820s to about 200 in the 1850s. This number continued to rise, reaching a peak of 500 in the 1900s. However, as the *piaohao* began to decline after 1911, the total number of branches rapidly decreased. Within a decade, it dropped from 500 to 96 and further plummeted to 23 before they disappeared entirely. Modern Chinese banks saw their branch numbers start to climb from fewer than 50 in the 1900s to 200 in the 1910s. This growth continued over the following decades, reaching 550 branches in the late 1920s, a number comparable to the Shanxi *piaohao*'s peak. In the next decade, modern Chinese banks doubled their branch numbers, with an average of eight branches per bank. By the time the Second Sino-Japanese War broke out in 1937, modern Chinese banks had 1,330 branches in operation.

Table 4 compares the total paid-up capital, remittance volume, income, and profits between *piaohao* and modern Chinese banks. As the table suggests, despite some fluctuations over time, the total paid-up capital for all the *piaohao* increased from 504 thousand yuan in 1823 to 3.2 million yuan in 1904. It peaked at 12 million yuan in 1911 but started to decline afterward. In contrast, the paid-up capital for modern Chinese banks increased steadily from their establishment, surpassing that of the *piaohao* by 1908, and peaked at 402 million yuan in 1936.

We have six observations for *piaohao*'s remittance volume, indicating that *piaohao* remittances grew from 60 million yuan in 1841 to 1.7 billion yuan in 1905. As the *piaohao* scaled down after 1911, remittance also began to shrink. Modern banks started remitting after their first establishment. During their heyday in the 1930s, the value reached 834 million yuan, which was half that of the *piaohao* in the 1910s. According to Economic Research Office (1934, p. A29), although remittance was one of the main businesses in modern banking, the number of banks operating this business in China was not large.<sup>11</sup> The primary reason was the insufficient number of branch banks to support widespread remittance operations.

*Piaohao*'s total income and corresponding profits increased steadily during the period from the 1850s to the 1900s, for which we have data. However, their profits did not increase at the same rate as their income. Profitability decreased from 47% in 1856 to 21% in 1879, and further down to 13% in 1905. To explore the reason for this, we compared *Rishengchang* balance sheets in the 1850s, 1860s, and 1900s. We found that over time, two types of expenditures—payable and paid interest (*fuwaiqili* 付外期利) and postage, banquet, donation, and daily expenses (*youdian jiuxi bushi zashiyin* 郵電酒席佈施雜使銀), increased significantly. On average, payable and paid interest soared from 381 taels to 6,495 taels, while postage, banquet, donation, and daily expenses nearly quadrupled from 901 taels to 3,347 taels. Increases in expenses indicated that there might have been a misallocation of resources. In contrast to *piaohao*'s declining profitability, modern Chinese banks maintained a high profit margin. Both their income and profits increased steadily since their establishment. Between 1905 and 1936, the profitability of modern banks rose from 13% to 40%.



**Table 4.** A comparison of paid-up capital, total remittance volume, income, and profit between Shanxi *piaohao* and Modern Chinese Banks (1,000 Yuan).

Period	Total paid-up capital		Total remittance volume		Total income		Total profit	
	Shanxi <i>Piaohao</i>	Modern Chinese Banks	Shanxi <i>Piaohao</i>	Modern Chinese Banks	Shanxi <i>Piaohao</i>	Modern Chinese Banks	Shanxi <i>Piaohao</i>	Modern Chinese Banks
1820s								
1823	504	0	–	0	–	0	–	0
1826	1,327	0	–	0	–	0	–	0
1840s								
1841	–	0	59,647	0	–	0	–	0
1850s								
1856	1,848	0	166,119	0	1,102	0	526	0
1860s								
1863	–	0	227,754	0	3,411	0	1,576	0
1870s								
1879	–	0	371,722	0	6,675	0	1,403	0
1880s								
1884	3,500	0	–	0	–	0	–	0
1886	3,360	0	–	0	–	0	–	0
1890s								
1892	2,800	–	–	0	–	–	–	0
1897	–	3,500	–	1,154	–	–	–	–
1898	–	3,500	–	1,428	–	–	–	–
1899	–	3,500	–	1,386	–	–	–	–
1900s								
1900	–	3,500	–	–	–	–	–	–
1901	3,360	–	–	–	–	–	–	–
1903	2,100	–	–	–	–	–	–	–
1904	3,220	3,500	–	1,570	–	–	–	–
1905	–	4,900	1,659,819	–	38,494	500	5,195	155
1908	–	21,865	–	–	–	–	–	–
1910s								
1911	12,236	35,106	–	–	–	–	–	–
1912	–	27,136	–	–	–	–	–	–
1913	5,586	28,906	–	–	–	–	–	–
1914	8,288	38,418	–	–	–	–	–	–
1915	–	45,214	–	–	–	–	–	–
1916	4,647	54,978	–	–	–	–	–	–
1917	1,512	55,571	–	–	–	–	–	–
1918	3,192	66,475	–	–	–	–	–	–
1920s								
1920	3,150	88,084	–	–	–	–	–	–
1921	2,275	142,765	–	–	–	33,992	–	13,254
1926	–	163,813	–	–	–	40,539	–	16,914
1929	–	212,286	–	515,901	–	–	–	–
1930s								
1931	–	221,916	–	826,856	–	61,005	–	21,065
1933	–	250,835	1,862	754,721	–	84,640	–	32,802
1934	–	342,856	–	834,233	–	94,899	–	39,467
1935	854	369,619	–	–	–	102,786	–	37,247
1936	–	402,696	–	–	–	118,745	–	49,916

Source: Huang (2002, pp. 38–43, pp. 466–477, pp. 557–561, pp. 618–620, 1257–1262); An account book from an unidentified *piaohao* branch 1849; *Rishengchang* account books from Qingjiangpu 1852, Suzhou 1856, Yangzhou 1867, and branches in Xian 1905, Kaifeng 1906, Zhoujiakou 1906, Hangzhou 1906, Guilin 1906, Guangzhou 1906, Changsha 1906, Guangdong 1906, Xiangtan 1906, and Chongqing 1906 (Advanced Asia Studies Library, University of Tokyo); Economic Research Office (1934, pp. A29–A31); Economic Research Office (1935, pp. A39–A42); Economic Research Office (1936, pp. A23–A24); Economic Research Office (1937, pp. A56–A57); Financial Research Office, People's Bank of China Shanghai Branch (1982, p. 119); Cheng (2003, p. 250); Kong (1991, pp. 109–124, p. 228); Su (2005, pp. 129–138); Wei (2008, pp. 15–26). Note: Appendix 2 describes the compilation of Table 4. 1 tael of silver equals to 1.4 Chinese yuan (Cheng, 2003, p. 9). '–' means data are not available.

## 4.2. Individual level comparison to the Shanghai Commercial and Savings Bank

After comparing Shanxi *piaohao* and modern Chinese banks at an aggregate level, with a specific focus on the Shanghai Commercial and Savings Bank (hereafter referred to as the Shanghai bank), we explore how Shanxi *piaohao* and modern Chinese banks differ at an individual level. Our comparison includes corporate governance, banking practices, and personnel arrangements between the two financial institutions.

The Shanghai bank was established in 1915 with a paid-up capital of 100,000 yuan, invested by nine shareholders (Archival Materials of the Shanghai bank, p. 27). Although the bank initially had a similar paid-up capital and number of shareholders as the *piaohao*, it expanded significantly over time. Unlike most Shanxi *piaohao*, which were exclusively invested in by Shanxi merchants, the Shanghai bank's shareholders transcended geographical boundaries through their social connections. At its inception, the bank received investments from merchants and officials across various provinces. Over time, the investor base broadened to include large Chinese firms and capital conglomerates, facilitating rapid growth of its paid-up capital. By 1921, the bank's paid-up capital had risen to 2.5 million yuan, and by 1936, it had doubled to 5 million yuan (Archival Materials of the Shanghai bank, p. 2, pp. 27–28, p. 34; Yearbook of all banks in China, 1937, p. D.34).

Compared to the Shanxi *piaohao*, whose shareholders lacked an efficient mechanism to monitor head managers in its later period, the Shanghai bank was more efficient in solving the agency relationship since its establishment. The bank's shareholders first elected a board of directors, who in turn elected a president and appointed one of their members as the general manager. To oversee the bank's operations, the board of directors also invited two to three supervisors from outside the bank. It initially had nine board of directors and two supervisors. By 1922, these numbers increased to 17 board of directors and three supervisors. Chen Guangfu, one of the founders of the bank, was appointed as the general manager and served the bank until his passing in 1976 (Archival materials of the Shanghai bank, p. 2 pp. 46–49; Economic Research Office, 1937, p. D.34).

The Shanghai bank positioned itself as a crucial financial intermediary in supporting commercial, industrial, and agriculture development. Therefore, it adopted modern bank's modus operandi and was more diversified in its banking practices. It took deposits, issued loans, remitted funds, and issued banknotes (Archival materials of the Shanghai bank, p. 17, pp. 855–862). To expand its deposit base, the bank allowed customers to open an account with as little as one yuan in paper money or one tael of silver. It hired an increasing number of street runners who were tasked with persuading business enterprises, large firms, and foreign companies to deposit with them. With flexible saving methods and competitive interest rates, the bank's deposits increased from 576 thousand yuan in 1915 to 60 million yuan in 1929, and then reached to 153 million yuan in 1935 (Archival materials of the Shanghai bank, pp. 94–120, p. 262, pp. 453–461, p. 704, p. 707).

Unlike to *piaohao*, which lent money on borrowers' reputations rather than collaterals, the Shanghai bank designed two ways of issuing loans: Mortgage loans and loans guaranteed by borrowers' reputation. For mortgage loans, the bank would check and evaluate the value of collaterals before approving the loans. For reputation-based loans, the bank investigated the background of the borrowers and filled out investigation forms. To ensure borrowers' repayment capabilities, the bank assessed the value of the collateral or the reputation of the borrowers on a monthly basis during the loan period (Archival materials of the

Shanghai bank, pp. 147–148). Operating under a prudent policy, the bank's loans increased steadily from 510 thousand yuan in 1915 to 43 million yuan in 1928, and then to 166 million yuan in 1936, experiencing only a few cases of defaults (Archival materials of the Shanghai bank, p. 702, p. 708).<sup>12</sup>

Since its establishment, the Shanghai bank paid great attention to remittance. According to Chen Guangfu, offering remittance services is the quickest way to establish business networks with clients. Therefore, the bank should be flexible and charge low or even zero fees to attract customers (Archival materials of the Shanghai bank, p. 134). Under this strategy, the bank's remittance expanded swiftly. By setting up agencies in native banks across different provinces and collaborating with other modern Chinese banks, the bank had established 118 remittance units by 1925. This number had increased to more than 200 by 1936 (Archival materials of the Shanghai bank, pp. 123–127, p. 463). Clients who used the bank for remittances included modern Chinese firms, factories, and foreign companies (Archival materials of the Shanghai bank, pp. 132–140). In 1936, the bank's annual remittance volume levelled at 400 million yuan, generating an income of 2.9 million yuan (Archival materials of the Shanghai bank, p. 483). Compared to the Shanghai bank, each *piaohao* operated on a smaller scale. Our estimates indicate that during their peak, a typical *piaohao* had an average of 22 branches, remitted 72 million yuan annually, and generated an income of 1.6 million yuan.

Dissimilar to Shanxi *piaohao* that imposed a highly centralised management structure, the general manager in the Shanghai bank delegated operational authority down the hierarchy. To prevent miscommunication and lose control of branches, the bank groups all branches into several regions. It appointed the deputy general managers as regional managers to supervise each region (Archival materials of the Shanghai bank, p. 786). Every week, every branch was required to disclose its business reports to its staff members and send copies to the headquarters and to other branches (Archival materials of the Shanghai bank, p. 792). To prevent the manipulation of accounts, the bank set up annual budgets, separated the accounting and cashier departments, and conducted regular internal audits—practices that were absent in the *piaohao* (Archival materials of the Shanghai bank, p. 757–775).

Both the Shanxi *piaohao* and the Shanghai bank upheld the principle that employees were key to their success. However, unlike the *piaohao*, which employed a recruitment strategy based on geographical and personal connections, the Shanghai bank placed a higher value on employees' formal education and implemented a more impersonal recruitment policy. To work for the bank, candidates should have a minimum of a middle school degree and needed to pass a written examination and an interview. These assessments aimed at evaluating their knowledge, work experience, and family background (Archival materials of the Shanghai bank, pp. 795–798). After getting the job, employee had a probation period, during which they received training in banking knowledge, practical skills, and ethics. To record his personal information and performance, the bank also set up each a personnel profile for each employee (Archival materials of the Shanghai bank, pp. 796–797).

Regarding personnel arrangements, the Shanghai Bank provided a more balanced work-life environment to incentivise its employees. Staff members worked six days a week from 9 am to 5 pm and were entitled to one month of paid leave annually. There were 33 salary grades, with the lowest salary being 30 yuan, equivalent to 21 taels in silver, and the highest 330 yuan, equivalent to 237 taels in silver (Archival materials of the Shanghai bank,

pp. 818–819). Depending on work performance and the bank's profitability, employees could receive a year-end bonus. The retirement age was set at 65 years old. Based on their years of service and salary at retirement, employees received pensions until their death (Archival materials of the Shanghai bank, pp. 818–814). Compared to the *piaohao*, which failed to gain favour with the newly established Republic government, the Shanghai bank played an active role in the new government's political arena. Beginning in 1928, Chen Guangfu successively held several key positions, including Governor of the Central Bank of China, Councilman of the Shanghai Consultative Committee, Chairman of the Cotton Production Association, and Representative of the China Chamber of Commerce. These roles helped the Shanghai bank strengthen its relationship with the new government and enhanced its ability to withstand external risks during political instability (Archival materials of the Shanghai bank, pp. 291–318).

The bank performed well throughout its operation. Starting as a small commercial bank, by 1936 it had grown into one of the largest Chinese commercial banks, employing 1,725 members of staff across 28 branches and 48 sub-branches (Economic Research Office, 1937, p. D.34). After WWII, the bank relocated its headquarters to Taipei and officially resumed operations in 1965. Currently, it has over 7,400 staff members and operates 280 branches worldwide (Shanghai commercial and savings bank, n.d.).

The above comparison shows that the Shanxi *piaohao* and modern Chinese banks were largely distinct. Compared to Shanxi *piaohao*, modern Chinese banks operated by learning from western banking practice and business management and therefore more efficient in delegating authority while retaining internal control. As China transitioned to a republican era in 1912, the new political regime viewed the promotion of modern banking as its duty (Cheng 2003, p. 39). In this context, modern Chinese banks entered their golden age, while the Shanxi *piaohao* collectively withdrew from the Chinese financial market.

## 5. Conclusion

Ghoshal et al. (1999) argued that management competency, defined by entrepreneurial judgement and organisational capability, leads to firm growth. To understand the rise and decline of the Shanxi *piaohao*, we examined their ownership structure, corporate governance, personnel arrangements, and incentive mechanisms. When assessing the effectiveness of the *piaohao*'s organisational structure, we evaluated their business performance by using statistics and compare them with that of modern Chinese banks.

We show that in a business environment where the state provided a legal framework for commercial order but encouraged merchants to use customary rules in business practices, Shanxi *piaohao* designed comprehensive private rules for solving the commitment problem. Formed as business partnerships with unlimited liabilities, *piaohao* shareholders used geographically based social connections to accumulate capital. By combining a centralised management structure, a collective punishment mechanism, and a competitive compensation package, *piaohao* successfully overcame the commitment problem of the far-flung employees. Despite its earlier success in managing agency relations, shareholders in the later period failed to monitor head managers effectively. A highly centralised organisational structure began to show diminishing returns as head managers reached the limits of their bounded rationality with business grew. *Piaohao* suffered colossal loss during the 1911 Revolution, which led to massive looting and brought an end to China's imperial regime.

As with the China entered to a republican era, modern Chinese banks, which organised under Western banking practices, rose to prominence. It was in this situation that *piaohao* began to dwindle and collectively decline.

Austin et al. (2017) argued that the business history of emerging markets should be viewed as an alternative perspective, rather than simply adding new settings to explore established core debates. As we demonstrate in this paper, during a period of economic uncertainty and political upheaval, a group of private merchants in China established a nationwide remittance network by relying on private rules. As China's largest remittance-banking group in the nineteenth century, the rise and fall of the Shanxi *piaohao* was driven and restrained by its private rules. Our study provides a new case study and offers perspective on how business enterprises were organised and managed in late imperial China. It sheds light on the achievements and destinies of typical Chinese merchants at the time, with implications for the present and the future.

## Notes

1. Tael or *liang* was the unit account of silver, with one tael equal to approximately 40 g. of silver (von Glahn, 2010, p. 476).
2. As early as the Tang dynasty (618-907AD), merchants could travel around the country without carrying metal cash but with a paper proof of ownership called flying money (*fei qian* 飛錢). Unlike the later drafts, which were issued by merchants, flying money was issued by the government to solve the problem of carrying copper coinage rather than settling payment. Moreover, the policy of flying money lasted only for a short period of ten years (Wei, 2008, pp. 1–7).
3. The main traded commodities were grain, cloth, salt, cotton, and silk (Wu, 1983).
4. The commercial statutes of the Qing codes were grouped into two new sections of 'monetary obligations (*qianzhai* 錢債)' and 'markets (*shichan* 市纏); which were under the category of household law (*hulü* 戶律), the section on 'violence and robbery' (*zeidao* 賊盜), under 'penal affairs' (*xinglü* 刑律) (So & So, 2022, pp. 422–429).
5. Litigation usually started with the submission of accusations. Plaintiffs were required to submit accusations to the county where the defendants lived. To have their legal documents accepted and reviewed by local magistrates (*yamen* 衙門), plaintiffs and defendants had to follow certain writing guidelines and formulas to write accusations and rebuttals. In addition, the local magistrate did not accept petitions daily. Instead, plaintiffs and defendants could only submit their documents on certain dates of the year, which varied from county to county (Fuma, 2007). If either party wished to win the case, they usually had little choice but to employ litigation masters, who could help them draft legal documents and negotiate with *yamen* runners and clerks (Fuma, 2007, p. 94.). Moreover, as most of the cases were processed by the local magistrate's advisors, plaintiffs and defendants had to bribe them to learn how their case was progressing, which was also costly (Fuma, 1993, p. 398). After examining the case, the local magistrate would lodge a petition (*fanggao* 放告), informing the parties involved of the decision. If the plaintiff or defendants were dissatisfied with the verdict, they could appeal to a higher level of magistrate (Fuma, 1993).
6. It has been estimated that a county magistrate in the late Qing period would have received 10,000 to 20,000 accusations and rebuttals yearly. In Ningyuan County in Zhejiang Province, 23,366 households submitted at least 10,000 petitions yearly (Fuma, 2007, p. 81).
7. Among 43 Shanxi *piaohao* that we have, 38 of them were solely invested in by Shanxi merchants. One *piaohao*, *Jianjisheng*, received investments from Shaanxi, and Anhui merchants, along with Shanxi merchants. The rest four—*Tianchengheng*, *Fengyutai*, *Songshengchang*, and *Baofenglong*—had officials as investors (Huang, 2002, pp. 638–665).
8. This was the case for individuals like Wang Zongyu of *Dedetong*, as well as Hou Wangbin and Hou Dingyuan of *Tianchengheng*.

9. An example of this occurred with Song Jvkui, the former deputy head manager of *Weitaihou*, who held an employment share of 9 li. Song retired from *Weitaihou* due to health issues. After several years of recuperation, in 1906, Song was appointed as the head manager of *Baofenglong*, holding a share of 1.2 fen (Huang, 2002, pp. 562–576). The *piaohao* valued one share as one fen 分 and divided one fen into ten grades, each called one li 厘 (Chen, 1937, pp. 87–88).
10. For example, in 1899, *Rishengchang* business letters from Guangzhou to Pingyao mentioned the transfer of employees. Besides, *Weifenghou's* business letters also mentioned the transfer of staff (Huang, 2002, p. 1029; pp. 1099–1204).
11. Here worth mentioning that, as mentioned in Economic Research Office (1934, p. A29.), with the exception of the Bank of China, remittances for other banks were small and difficult to estimate. Therefore, the author approximated all banks' remittance volumes based on the Bank of China's figures. Therefore, the data provided in the book may underestimate the actual remittance volume of modern banks.
12. In 1926, 55% of the loans were allocated to commercial purposes, 19% were directed towards industrial and mineral firms, 20% were issued as personal loans, and the remainder was allocated to government, railway, health, and education sectors (Archival materials of the Shanghai bank, p. 193).

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*An account book for an unidentified piaohao branch in 1849, Rishengchang account books from Qingjiangpu in 1852, Suzhou in 1856, Yangzhou in 1867, Xian in 1906, Kaifeng in 1906, Zhoujiakou in 1906, Hangzhou in 1906, Guilin in 1906, Guangzhou in 1906, Changsha in 1906, Guangdong in 1906, Xiangtan in 1906, and Chongqing in 1906* (Items 69–70), Advanced Asia Studies Library, University of Tokyo, Japan.

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## Appendices to: “Governance Structure, Organizational Form, and Business Performance: A Study of the Shanxi *Piaohao* (Banks), 1820s to 1930s”

### Appendix 1. The number of piaohao branches in different years

Year	<i>Piaohao</i>	Number of branches	Year	<i>Piaohao</i>	Number of branches
1823	<i>Rishengchang</i>	5	1875	<i>Xintaihou</i>	11
1841	<i>Rishengchang</i>	12	1879	<i>Weitaihou</i>	13
1847	<i>Weitaihou</i>	6	1879	<i>Weifenghou</i>	14
1850	<i>Rishengchang</i>	17	1886	<i>Rishengchang</i>	25
1850	<i>Rixinzhong</i>	12	1890s	<i>Rishengchang</i>	27
1856	<i>Rishengchang</i>	19	1906	<i>Rishengchang</i>	30
1858	<i>Weitaihou</i>	7	1906	<i>Jinshengrun</i>	14
1859	<i>Weifenghou</i>	8	1910s	<i>Dadeheng</i>	8
1867	<i>Rishengchang</i>	22	1917	<i>Jinshengrun</i>	8
1870s	<i>Rishengchang</i>	24	1933	<i>Dadeheng</i>	6
1871	<i>Weishengchang</i>	14	1933	<i>Dadetong</i>	11
1874	<i>Xietongqing</i>	17	1933	<i>Sanjinyuan</i>	6
			1935	<i>Dadetong</i>	6

Source: Huang (2002, p. 15, p. 21, 38-43, 212-8,547-550,557-561,618,841-7,860-1100).

### Appendix 2. Explanation of the compilation of table 4

To estimate the total paid-up capital for all the Shanxi piaohao, we first calculated the average paid-up capital per piaohao in different years. The paid-up capital for different piaohao is recorded in Huang (2002, pp. 638-665) and Wei (2008, pp. 15-26). We show them in Appendix 3. We derived the total paid-up capital by averaging the collected paid-up capital and multiplying the total number of Shanxi piaohao in the same year. For example, in 1826, we have the paid-up capital for five piaohao, *Weifenghou*, *Weishengchang*, *Weitaihou*, *Tianchengheng*, and *Xintaihou* as 100,000, 120,000, 240,000, 70,000, and 260,000 taels. At that time, there were six Shanxi piaohao in operation. Therefore, we average the paid-up capital first and then multiply by six to derive the value of 948 thousand taels. Based on the exchange ratio between Shanghai tael and Chinese dollars, which is 1:1.4 (Cheng, 2003, p. 9), we obtain the total paid-up capital for Shanxi piaohao is 1,327 thousand *yuan*. The paid-up capital of modern Chinese banks has been estimated by Cheng (2003, p. 250), and we incorporate this data in our study.

To estimate the remittance volume for Shanxi piaohao, we first calculate the average remittance volume per branch for a given year based on our dataset (Appendix 4) and then multiply the total number of branches. The remittance volume is defined as the total of received remittance (*shouhui* 收匯) and submitted remittance (*jiaohui* 交匯). In some years, we have information on the number of branches or the average remittance volume, and we use data from adjacent years to estimate the total volume in such cases. For example, in 1905, we had the total number of piaohao branches, which was 506, but not the remittance volume. Hence, we used the remittance volume we estimated in 1906 to calculate the total remittance volume in 1905.

We consulted three sources to collect the remittance volume for modern Chinese banks. Between 1897 and 1904, when only the Imperial Bank of China was in operation, we examined Financial Research Office, People's Bank of China Shanghai Branch (1982, p. 119) which estimated the volume of official remittances handled by the bank. For the remaining years, we referred to Economic Research Office (1934, p.A29), and Economic Research Office (1935, pp. 39-40).

We obtained the Shanxi piaohao's total income and profit data from fourteen account books that we collected from the University of Toyko. Besides, we also referred Huang (pp. 618-20, pp. 1257-9), which contained balance sheets of *Rishengchang* Jiangxi branch 1853 and *Qianjisheng* Jinan branch 1876. To estimate the total income and profit in a year, we first calculated average the income and profit per branch in a year and then multiplying the aggregate number of branches of all the Shanxi piaohao in that year. For example, by averaging the profits of unnamed branch 1850, Qingjiangpu 1852, Jiangxi 1853, and Suzhou 1856, we obtained the value of 1941 taels. Since we only have the

number of branches information in 1856, we multiple the value with the number of branches in 1856 to we obtained the total profit for all the Shanxi piaohao is in 1856. Appendix 4 lists the profit data we collected.

To estimate the total income and profits for the modern Chinese banks, we consult Kong (1991) and Economic Research Office (1934, 1935, and 1937). Kong (1991, p. 228) collected financial statements of the Great Qing Bank's from 1905 to 1911. Based on the Great Qing Bank's profit in 1905 which is 37,152 taels and the number of total modern banks in operation in the year, which is three, we estimated the total profits in 1905. In addition, Economic Research Office (1934, p.A31.) recorded income and profits in 1921, 1926, and 1931, Economic Research Office (1935, p. 42) recorded income profit in 1933, and Economic Research Office (1937, pp. A.56-7) documented the profits from 1934 to 1936.

### Appendix 3. Paid-up capital for different piaohao in different years (1,000 taels)

Piaohao	The year that paid-up capital was recorded		Piaohao	The year that paid-up capital was recorded	
	Paid-up capital	Paid-up capital		Paid-up capital	Paid-up capital
<i>Rishengchang</i>	1823	360	<i>Changshengchuan</i>	1909	200
<i>Weifenghou</i>	1826	100	<i>Rishengchang</i>	1911	380
<i>Weishengchang</i>	1826	120	<i>Xietongqing</i>	1913	240
<i>Weitaihou</i>	1826	240	<i>Xiechengqian</i>	1913	180
<i>Tianchengheng</i>	1826	70	<i>Dadeyu</i>	1913	220
<i>Xintaihou</i>	1826	260	<i>Dadechuan</i>	1913	200
<i>Heshengyuan</i>	1837	60	<i>Zhichengxin</i>	1914	240
<i>Xietongqing</i>	1856	120	<i>Heshengyuan</i>	1914	500
<i>Xiechengqian</i>	1860	60	<i>Weifenghou</i>	1916	280
<i>Weichanghou</i>	1864	150	<i>Weishengchang</i>	1916	240
<i>Huiyuanyong</i>	1881	100	<i>Cunygong</i>	1916	246
<i>Dadeheng</i>	1881	60	<i>Jinshengrun</i>	1917	90
<i>Qianjisheng</i>	1884	100	<i>Tianchengheng</i>	1918	156
<i>Dadetong</i>	1884	100	<i>Baichuantong</i>	1918	300
<i>Jvxianglong</i>	1886	100	<i>Weichanghou</i>	1920	250
<i>Dadeyuan</i>	1892	100	<i>Weitaihou</i>	1921	350
<i>Yongtaiqing</i>	1892	60	<i>Shiyixin</i>	1921	300
<i>Yuanfengjiu</i>	1893	100	<i>Dashengchuan</i>	1929	100
<i>Yongtaiyu</i>	1901	100	<i>Sanjinyuan</i>	1934	200
<i>Jinshengrun</i>	1903	60	<i>Dadeheng</i>	1935	260
<i>Qianshengheng</i>	1904	100	<i>Dadetong</i>	1935	350
<i>Baofenglong</i>	1906	130	<i>Zhichengxin</i>	1820-50	34

Source: Huang (2002, pp. 638-665); Wei (2008, pp. 15-26).

### Appendix 4. Remittance volume, income and profits of different piaohao branches (tael)

Piaohao	Branch	Year	Received drafts	Submitted drafts	Total remittance	Income	Profit
<i>Weitaihou</i>	Suzhou	1847	211,793	314,192	525,985	–	–
<i>Unidentify</i>	Unidentify	1850	783,223	816,301	1,599,524	11,940	9,343
<i>Rixinzhong</i>	Jingdu	1850	607,460	425,721	1,033,181	–	–
<i>Rishengchang</i>	Qingjiangpu	1852	188,788	188,800	377,588	4,959	2,998
<i>Rixinzhong</i>	Jingdu	1852	606,130	596,470	1,202,600	–	–
<i>Rishengchang</i>	Jiangxi	1853	181,043	174,577	355,620	1,596	203
<i>Rishengchang</i>	Suzhou	1856	153,315	149,889	303,204	4,222	2,623
<i>Weitaihou</i>	Shenyang	1858	553,292	567,726	1,121,018	–	–
<i>Rishengchang</i>	Unname	1861	172,012	163,059	335,071	–	–
<i>Rishengchang</i>	Yangzhou	1867	324,133	297,745	621,877	7,166	4,635
<i>Qianjisheng</i>	Jinan	1879	327,173	307,273	634,446	11,392	3,353

(Continued)

Piaohao	Branch	Year	Received drafts	Submitted drafts	Total remittance	Income	Profit
<i>Rishengchang</i>	Pingyao	1904	591,527	607,376	1,198,903	24,245	21,245
<i>Rishengchang</i>	Kaifeng	1906	1,188,288	1,211,544	2,399,832	16,787	-4,725
<i>Rishengchang</i>	Zhoujiakou	1906	247,814	228,411	476,225	12,131	6,146
<i>Rishengchang</i>	Yangzhou	1906	493,037	437,437	930,474	-	-
<i>Rishengchang</i>	Hankou	1906	3,498,183	2,966,076	6,464,259	-	-
<i>Rishengchang</i>	Shashi	1906	404,110	433,895	838,005	-	-
<i>Rishengchang</i>	Changsha	1906	900,726	1,006,568	1,907,294	19,188	2,223
<i>Rishengchang</i>	Chongqing	1906	1,264,822	1,461,583	2,726,405	40,710	33,586
<i>Rishengchang</i>	Wuzhou	1906	1,668,031	1,557,791	3,225,822	-	-
<i>Rishengchang</i>	Jingdu	1906	1,247,412	1,246,948	2,494,360	-	-
<i>Rishengchang</i>	Tianjin	1906	850,133	895,780	1,745,913	-	-
<i>Rishengchang</i>	Xi'an	1905	563,479	637,540	1,201,019	8,200	-7,940
<i>Rishengchang</i>	Shanghai	1906	3,285,639	3,317,206	6,602,845	-	-
<i>Rishengchang</i>	Hangzhou	1906	476,656	485,519	962,175	22,886	6,240
<i>Rishengchang</i>	Guilin	1906	1,084,009	1,207,432	2,291,441	170,905	38,090
<i>Rishengchang</i>	Yingkou	1906	426,143	259,406	685,549	-	-
<i>Rishengchang</i>	Xiangtan	1906	591,526	607,079	1,198,605	24,245	21,245
<i>Rishengchang</i>	Guangdong	1906	1,894,201	1,889,136	3,783,337	204,093	-13,436
<i>Weichanghou</i>	Haikou	1907	1,642,913	1,742,347	3,385,260	-	-
<i>Dadetong</i>	Qixian	1930	368,580	148,384	516,964	-	-
<i>Dadetong</i>	Qixian	1931	501,433	17,600	519,033	-	-
<i>Dadetong</i>	Qixian	1932	563,330	4,818	568,148	-	-
<i>Dadetong</i>	Qixian	1933	282,479	25,000	307,479	-	-
<i>Dadetong</i>	Qixian	1934	182,098	122,670	304,768	-	-

Source: Huang (2002, 38-44, 466-77, 577-61, 618-20, 1257-1262); An account book for an unidentified piaohao branch 1849, *Rishengchang* account books from Qingjiangpu 1852, Suzhou 1856, Yangzhou 1867, and branches in Xian 1905, Kaifeng 1906, Zhoujiakou 1906, Hangzhou 1906, Guilin 1906, Guangzhou 1906, Changsha 1906, Guangdong 1906, Xiangtan 1906, and Chongqing 1906 (Advanced Asia Studies Library, University of Tokyo). '-' means information unavailable.

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