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Institut de recherches économiques

Private money and money market integration: the role of payments infrastructure in 19th century Switzerland

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Overview

- Using newly collected daily discount rate data for six Swiss cities, over the period 1847-1893, we find no evidence of increasing integration during a 30-year period of lightly regulated free banking.
- Instead, find a “step change” in integration at the time of the Banknote Act in 1881, which regulated the issuance of banknotes.
- We attribute this to two structural issues:
  - Banks had incentives to protect their local monopolies.
  - Inherent instability of free banking meant that there was always a risk (which varied across banks) of a bank run.
- We use a novel counterfactual to show that these risks increased discount rate dispersion, and argue that as a result, public regulation of payments infrastructure was necessary for money market integration.

Literature

- Contribute to the literature using interest rates to study financial integration.
- Klovland and Øksendal (2017): interest rate dispersion in Norway in the period 1850 to 1892.
- Mitchener and Ohnuki (2009): data for Japanese prefectures between 1884 and 1925.
- Nogues-Marco et al., (2019): Spanish money market from 1825 to 1874.
- Good (1977): financial (dis)integration in 19th century Austrian data.
- Davis (1965), Sylla (1969), Smiley (1975), James (1976) study US in the period after the Civil War.

Literature

- Another strand of the literature emphasizes the importance of the Swiss Banknote Act 1881 in shaping the financial system.
- Neldner (1998, 2003) articulates the prevailing view that the Banknote Act had a destabilizing effect by creating a free-rider problem that led to over-issuance of banknotes and an undervaluation of the exchange rate.
- Herger (2022) develops testable hypotheses based on the model of Miron (1986) and argues similarly.
- We do not challenge the findings of these studies.
- Instead, we focus on a different impact of the Banknote Act: its effect on money market integration.

Historical background

Coins, but not notes

- Following the foundation of the modern Swiss confederation in 1848, Swiss Franc coins were introduced in 1850.
- The issuance of banknotes remained a competitive business.
- Period up to 1881 referred to as “unfettered free banking” (Herger (2022)).
- Fick (1863, p.87): “nowhere in Switzerland are bank laws in place in the sense of regulations for the control of existing and the permission of new banks”.
- Five cantons had some form of regulation by about 1880 (reserve ratio, approval from the local government for note issuing). Six other cantons had a banknote tax of at most 1% of the circulating notes’ face value.
- However, there was no uniformity across the Confederation, and regulation was generally very limited.

Unfettered free banking

- The period is generally considered an example of stable free banking.
- Herger (2022) notes that between 1826 and 1907, there were just two panics and one failure (Banque Cantonal du Valais).
- On the other hand, in a report to the National Monetary Commission of the US Senate, Landmann (1910, p.19) argues: “disregarding all banking principles, [the banks] entered into every conceivable transaction for the sole purpose of bringing the largest possible amount of their notes into circulation”.
- Landmann (1910, p.11): “not without reason” the public doubted the security of banknotes.
- Either way, it is recognized that the market remained fragmented: monitoring costs were high (Herger (2022)) and banknotes were generally illiquid.
- Ritzmann (1973) concluded that the period of unfettered free banking was ultimately unsustainable.

Payments infrastructure - Geldcrisis

- At the start of the Franco-Prussian war, France raised the discount rate, prohibited gold exports and suspended banknote convertibility.
- Liquidity “Geldcrisis” in Switzerland. Confederation authorities were unable to negotiate a joint solution among the banks to deal with the liquidity shortage.
- In 1874, an amendment to the Federal Constitution gave the Confederation authority to pass legislation on the issue and redemption of banknotes.
- Enabled the passing of the Banknote Act of 1881.
  - Acceptance of notes at par.
  - Metal reserve requirements.
  - Equity/capital requirements.
  - Standardization of banknotes.
  - Regular reporting requirements.

Regulated free banking

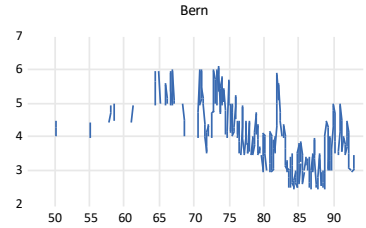
- Combined with the scarcity in failures of note-issuing banks, the Act was successful in making banknotes widely accepted.
- Banque du Commerce de Genève annual report 1898: banknotes “circulate without distinction”.
- Jöhr (1915, p. 203) states “indeed, the ordinary man, in course of the years, ceased to differentiate between the notes of the various banks. If the notes carried the name and signatures of this or that bank, was no longer taken into consideration”.

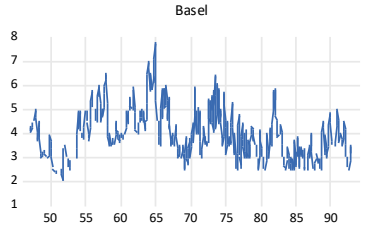
Quantifying discount rate dispersion

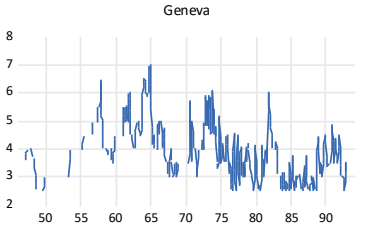
Data

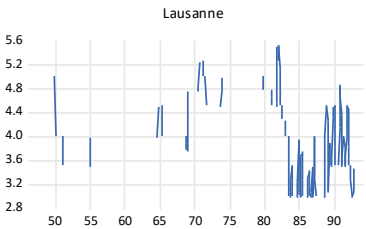
- Daily discount rates of banks of issue in Zurich, St. Gallen, Basel, Geneva, Bern and Lausanne.
  - Most important banks of issue in the most important economic centers.
- Newspapers, quotation sheets of stock exchanges, commemorative studies.
  - e.g., Kursblatt der Basler Börse, NZZ, Journal de Genève.
- Compared to existing work by Jöhr (1915) we collect:
  - Discount rates for two more cities (Bern and Lausanne),
  - Another bank type (cantonal banks in Bern and Lausanne, in addition to private banks) and
  - At a higher frequency (daily rather than annually).
- Start date: 1847, first year where we have information on all cities.
- End date: 1893, only one common discount rate for all banks of issue.

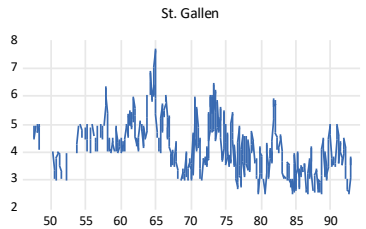
Monthly discount rates 1847-1893

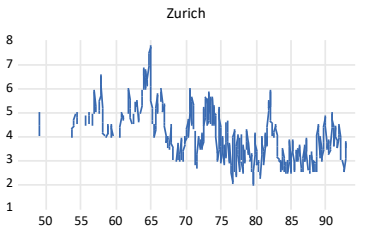






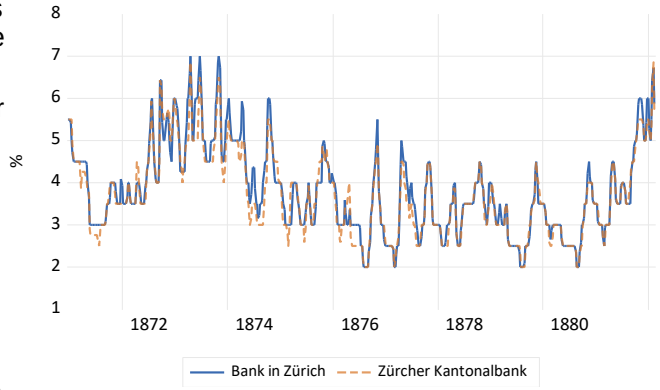






Two banks in Zurich

- The (private) Bank in Zürich stopped announcing discount rates and withdrew from the banknote business in 1882, so we also use data from the Zürcher Kantonalbank.
- Overlapping data between December 1870 and February 1882.
- Set very similar rates during this time: the correlation coefficient between the series is 0.97, the medians of the two series are the same and the means are within 10 basis points of each other.
- Seems not to be the case that cantonal banks as a rule set discount rates differently from private bank.



Measuring dispersion

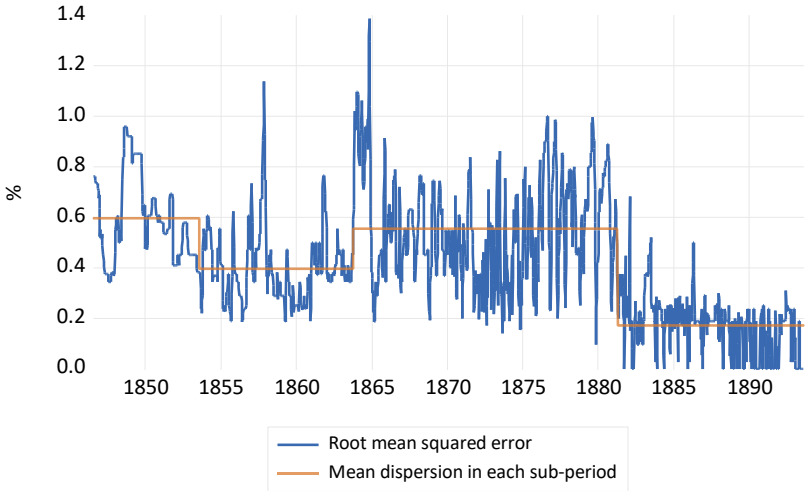
- Our preferred measure of dispersion is the root mean squared deviation (RMSD) of the six discount rates:

$$RMSD = \sqrt{\frac{\sum_{i=1}^{N}(r_{i,t} - \overline{r_t})^2}{N}}$$

- Where $r_{i,t}$ is the discount rate in city i in month t, and $\overline{r_t}$ is the average of the six discount rates in month t. Since there are six Swiss cities, $N = 6$.
- Choice of dispersion measure is arbitrary, but in an Appendix we show that six alternative measures of dispersion lead to almost identical conclusions.

Dispersion

- Search for a break in the mean of the RMSD using Bai-Perron tests.
- Breaks in 1853, 1863 and 1881, coinciding with the Banknote Act.
- Private (or lack of public) regulation did not lead to an increase in integration.



Why was there no integration before 1881?

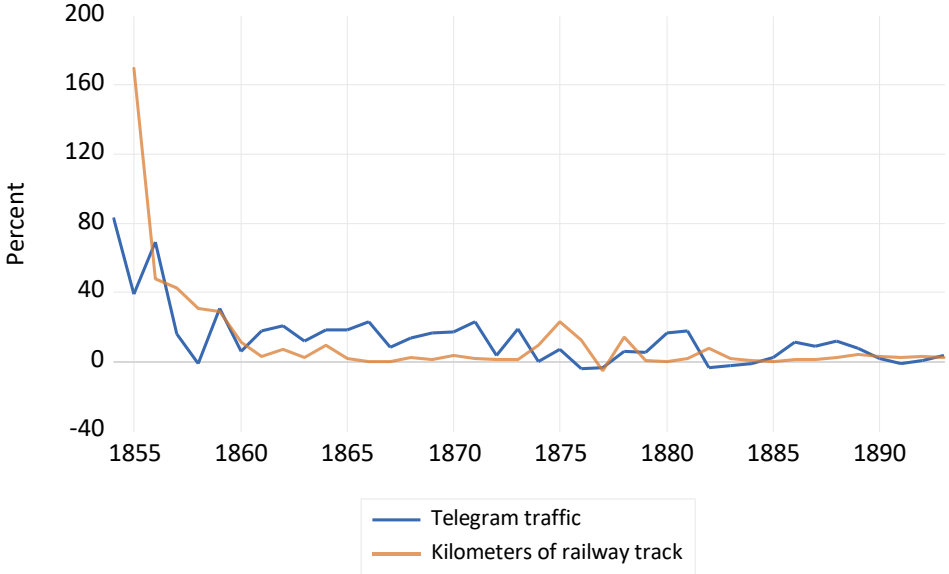
Why was there no integration before 1881?

- We argue that two factors were important:
  - Lack of competition through banks' ability to protect local monopolies.
  - Conversion risk.

Background

- Lack of integration in financial markets is often attributed to information or transportation barriers (Mitchener and Ohnuki (2009), Nogues-Marco et al., (2019), Klovland and Øksendal (2017)).
- After the Confederation was established, most internal barriers to trade were abolished, and postal services and telegraph infrastructure were centralized.
- In 1850, there were already 1500 postal offices operated by the newly founded Eidgenössische Post (Kronig (2011)).
- The first telegraph line came into operation in July 1852 and by 1853 the telegraph network already included 70 locations (Buschauer (2013)).
- The first railways in Switzerland started to operate before 1850 connecting Basel and Strasbourg (1844) and Zurich and Baden (1847) (Bärtschi and Dubler, 2015).
  - 210km in 1855, 1052km in 1860 (HSSO, 2012).

Background: Annual growth rates in the kilometres of railway track and in telegram traffic, 1854-1893



Local monopolies

- Eidgenössische Bank (est 1863) aimed to become Switzerland's first universal bank.
- Unusual in quickly establishing branches throughout Switzerland, posing a threat to existing banks.
- Existing banks sought to ward off the competition by establishing multilateral agreements on banknote conversion.
- The Bank in St. Gallen contacted two other banks arguing that a "Konkordat" or cartel agreement would enlarge circulation in the interest of all three banks but also: "counter the encroachments of the Eidgenössische Bank in Bern into the territory of the three designated banks as far as possible" (cited in Bleuler, 1913, p. 271).
  - Referred to as the "Alte Konkodat" (1864).

Local monopolies

- The Bank in St. Gallen discussed in an internal protocol from 1865 whether it should take measures to hamper the circulation of banknotes by the Eidgenössische Bank.
- Organized a conference with the Kaufmännische Direktorium, an important and powerful chamber of commerce in St. Gallen, and another credit bank to discuss measures. They decided to boycott the “foreign” or “wild” banknotes of the Eidgenössische Bank.
- “It would be appreciated if all money institutes would draw the public's attention to the danger of accepting banknotes that are not covered according to recognized principles, and that they would set a good example and declare that they will stop accepting these notes at their cash desks altogether.”
- As a result, the public did not fully trust the Eidgenössische Bank, and its banknotes in circulation remained relatively modest.

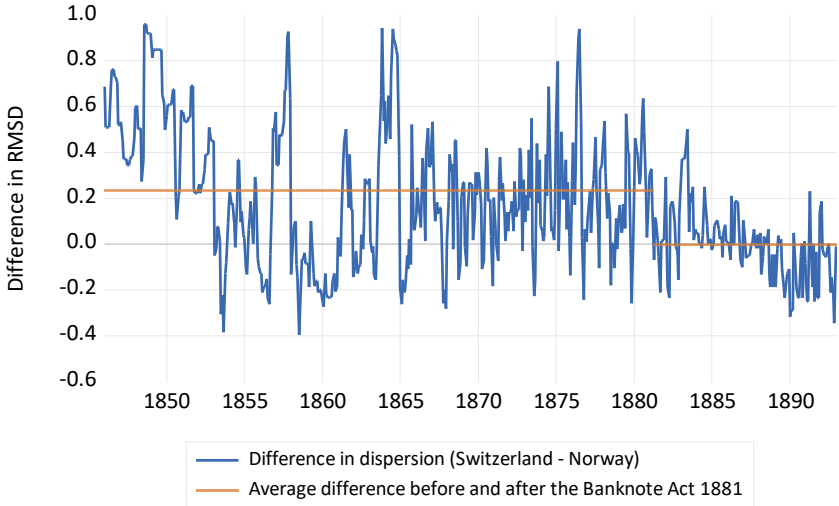
Conversion risk

- The risk that there is a run on the bank, such that the bank must convert large quantities of notes to specie (Miron (1986)).
- Herger (2022) shows theoretically that when banks perceive the risk of a run has increased, they increase discount rates to increase the ratio of reserves to notes in circulation.
- Variation in conversion risk across banks leads to discount rate dispersion.
- Banknote Act reduced conversion risk through two channels.
  - By requiring all banks to accept notes at par, customers then had less incentive to monitor banks' balance sheets.
  - Capital and liquidity requirements, alongside reporting requirements, reduced uncertainty about the stability of individual banks and reduced the risk of a panic leading to a run on a stable bank.

How important were local monopolies and conversion risk?

- Branches of Norges Bank were located across the country and discretion in setting discount rates. But:
  - No conversion risk since the notes were backed by the central bank.
  - No incentive to protect a local monopoly.
- Klovland and Øksendal (2017): discount rate dispersion in Norway due from transportation and information costs.
- In addition, both Norway and Switzerland were small, open economies.
  - Various regions were active in quite different economic sectors and export industries.
  - Monetary systems were similar:
    - Silver standard (Norway 1842, Switzerland in 1852) followed by Gold standard (Norway in 1874, Switzerland de facto in 1870s).

Difference in monthly discount rate dispersion, as measured by RMSDs, Switzerland and Norway, 1847-1893



Would integration have happened eventually?

Would integration have happened anyway?

- Selgin and White (1987, p. 446) expect banks to ultimately accept one another's notes at par if transaction and transportation costs are low enough.
  - Each bank has an incentive to accept the notes from other banks in an effort to increase the circulation of its own notes.
- Contemporaries hoped that with the introduction of the Swiss Franc coins, mutual agreements between all banks in Switzerland to accept notes at par would lead to more financial market integration (BEKB, 1851, p. 5).
- But: accords/cartels were limited to a subset of banks that did not necessarily meet the needs of consumers.
- No legally binding enforcement: if one bank got into trouble, others could simply suspend their accords with it.
  - During Franco-Prussian war, the Bank in Zürich publicly retained the right to refuse banknote conversion despite existing agreements.

Would integration have happened anyway?

- Several bilateral accords before the Alte Konkordat, but did not require conversion at par.
- The Alte Konkordat was the first to involve several banks. But it was defensive: aimed to prevent wide circulation of Eidgenössische Bank's notes.
- Second multilateral accord was formed in 1876 by 20 (later 28) banks ("Konkordatsbanken").
  - Agreed to convert each other's notes at par.
- But this was again defensive: in the wake of the failure of the constitutional referendum to unify banknotes in 1876, the commercial banks formed the accord to try to pre-empt any further attempts at regulation (Baltensperger and Kugler (2017)).
- As a result, it seems unlikely such an accord would have been agreed without the threat of public regulatory initiatives.

Conclusions

Conclusions

- Used newly collected discount rate data for six Swiss cities, over the period 1847-1893, to study integration in Switzerland.
- Selgin and White (1987, p. 446) expect banks to ultimately accept one another's notes at par if transaction and transportation costs are low enough.
- We find no evidence of this:
- Despite low transport costs/information barriers, no evidence of integration in the absence of public regulation.
- Instead it seems the Banknote Act was the trigger for increased integration.
- Argue to channels were important:
  - Destruction of local monopolies.
  - End/substantial lowering of conversion risk.

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Thank you very much for your attention

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