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Free banking as an evolving system: The case of Switzerland reconsidered

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Abstract Selgin and White (Economic Inquiry 25:439–457, 1987) argue that during its evolution a free banking system can be expected to reach certain stages of development. This paper uses their conceptual framework to investigate the free banking era in 19th century Switzerland and makes three contributions to the literature on free banking. First, I find that the development of the Swiss banking system closely matches the stylized evolutionary path depicted by Selgin and White. Second, I argue that after the introduction of the federal banknote law in 1882, the Swiss banking system can no longer be characterized as one of free banking. Third, I maintain that the evolutionary approach offered by Selgin and White opens the door to a better explanation of inter-bank note exchange complications during the 30 years preceding the introduction of a Swiss central bank in 1907 than alternative approaches.

Keywords Free banking · Switzerland · Evolution · Clearing arrangements

JEL Classification N23 · E4

1 Introduction

Since Hayek's (1978) work on the denationalization of money and White's (1984) study on free banking in Britain, the revived discussion of free banking, both theoretically and in the form of case studies, has been vibrant.[1] Switzerland, which

[1]For an overview of the literature see, for instance, Dowd (1992), Selgin and White (1994), and Briones and Rockoff (2005).

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during the 19th century had no central bank, has been the subject of many of these case studies (Nedwed 1992; Neldner 1992, 1996a, 1996b, 1998, 2003; Ritzmann 1973, 1996; Weber 1988, 1992). In 1882, a Swiss federal banknote law was implemented. Until then it was left to the cantons to overview note issue activities and it was not until 1907 that a nationwide monopoly of note issue by a central bank was implemented.[2] Two competing evaluations of the 19th century Swiss banking experience have been advanced. On the one hand the episode is considered, ultimately, as a failed experiment in free banking and regarded as evidence for the inherent instability of free banking systems (Neldner 1992, 1996a, 1996b, 1998, 2003). On the other hand, it is argued that the Swiss free banking experiment was a success and provides evidence for the feasibility of free banking systems (Ritzmann 1996; Weber 1988, 1992).

Nonetheless, proponents of free banking (Ritzmann 1996; Weber 1992) and central bank advocates (Bordo and James 2007: 32; Neldner 1998) alike agree that the period from 1826 to the early 1880s can be considered as a successful experiment in free banking.[3] Although a proponent of central banking, Neldner regards the free banking exercise as "reasonably successful" and states that "over 80 years of competitively supplied banknotes, there had been no suspension of specie payments, only two bank failures, and no losses for note holders, while the country as a whole had benefited from a prolonged economic upswing" (1998: 289–290).[4] However, in contrast to proponents of free banking such as Ritzmann (1996) and Weber (1992), Neldner (1998) argues that as the economy became more advanced during the 1880s, the free banking system became unstable. According to Neldner low discount rates due to the competition from non-issuing banks and the absence of an effective interbank clearing mechanism contributed to the instability of the free banking system and led to the overissue of banknotes, giving rise to a notorious depreciation of the Swiss Franc relative to the French Franc from 1885 onwards (Neldner 1996a: 182; Neldner 1998: 290).

Selgin and White (1987) argue that during its evolution a free banking system can be expected to reach certain stages of development. I make use of this evolutionary approach to free banking to provide an alternative assessment of the development of the Swiss banking system before and after the introduction of the federal banknote law in 1882. Selgin and White (1987: 444) identify three stages, which are themselves each characterized by a chain of developments, through which a banking system free of government interference evolves after commodity money has been created. First, money-transfer services that make the physical transportation of commodity money unnecessary develop. Second, easily transferable bank demand liabilities (inside money) come into existence. Third, clearing arrangements among competing banks that allow for routine exchanges of inside monies develop.

My discussion of the Swiss banking system starts after the banking system reached the second stage outlined by Selgin and White (1987) when banks created inside money by issuing the first redeemable bearer banknotes and gives rise to three major

[2] In 1865, Switzerland joined the Latin Monetary Union with Italy, France, and Belgium.

[3] Weber (1992: 196) maintains that the Swiss banking system is correctly characterized as a system of free banking only until the implementation of the federal banknote law in 1882.

[4] Jöhr (1915: 87) reports that the Banque Cantonale du Valais suspended specie payments temporarily.

claims. First, I argue that the evolution of the Swiss banking system closely maps onto the stylized evolutionary steps of a free banking system in its later stages as suggested by Selgin and White (1987). Second, and in contrast to Neldner (1996a, 1998, 2003), I maintain that after the implementation of the federal banknote law in 1882, the Swiss banking system was no longer one of free banking. Although competitive note issue continued, the imposed regulations ended the period of genuine free banking. Third, I argue that the evolutionary approach provided by Selgin and White (1987) opens the door to a better understanding of the inter-bank note exchange difficulties from which the Swiss banking system suffered during the 30 years preceding the establishment of the central bank in 1907 than alternative approaches. Failed attempts by Swiss bankers to establish well-functioning arrangements for inter-bank note exchanges during the last three decades before the introduction of the central bank in 1906 do not suggest that systems of free banking are inherently unstable. Instead, even after the introduction of the federal banknote law in 1882 such drawbacks can be considered as *natural* in the sense that they are the outcome of the interactions of competing banks.

The next section provides background information on the 19th century Swiss banking system and compares its development with the stylized path of development described in Selgin and White (1987). Section 3 discusses the 1881 federal banknote law and its consequences. Section 4 investigates complications of the Swiss banking system over the three decades preceding the establishment of the central bank in 1907. Section 5 contains concluding remarks.

2 The evolution of Swiss free banking

2.1 Background

The first Swiss bank to issue banknotes in 1826 was the *Depositokasse der Stadt Bern*, a bank founded by the city of Berne. It was followed by a cantonal bank in Berne (1834), a cantonal bank in Uri (1837), and private banks in Zürich and St. Gallen (both in 1837). By 1850, 11 banks issued notes in Switzerland. Five of them were private institutions and 6 of them were set up by a canton or a city. In 1865, 29 banks issued banknotes, 8 of which were cantonal banks, 15 were local banks, some of which had a mixed ownership structure consisting of private and public shareholders, and 6 were large private commercial banks. By 1880 the number of note issuing banks increased to 37, with 14 cantonal banks, 17 local banks, and still 6 large commercial banks.[5]

During this period there were no federal laws in Switzerland pertaining to the issue of banknotes and only in some cantons were laws in place that regulated private banks. A list of conditions, which have to be absent from a banking system to be one of free banking, helps to categorize the Swiss banking system of those days (Selgin

[5] For a detailed account of the Swiss banking industry of the 19th century, see Jöhr (1915). For the numbers of operating banks, see in particular Jöhr (1915: 521).

and White 1994: 1718–19): (1) Government control of the quantity of exchange media, (2) a state-sponsored central bank, (3) legal barriers to the entry, branching, or exit of commercial banks, (4) restrictions on the quantities, types, or mix of debt and equity claims a bank may issue, or on the quantities, types, or mix of assets it may hold, (5) controls on interest rates, (6) general deposit guarantees, and (7) restrictions placed on the terms of contracts made between banks and their customers beyond the requirement that they adhere to the standard legal principles governing all business contracts.

As of 1863, only Graubünden and Zürich had bank specific legislation and required money-lending institutions to get a license from the cantonal government (Ernst 1904: 39–41). Fick (1863: 87) therefore concludes that “nowhere in Switzerland are bank laws in place in the sense of regulations for the control of existing and the permission of new banks.”[6] As of 1874, note issuing banks in Zürich had to be authorized and were monitored by the cantonal council and banks had to cover one third of the issued notes by specie reserves. In Freiburg the volume of notes could not exceed one third of the bank’s capital, one third of the note volume had to be backed by specie, and cash balance reports had to be submitted to the cantonal government. Schaffhausen required an approval from the government for note issuing activities. In Solothurn and Neuenburg only the cantonal banks had the right to issue notes (Bundesrath 1875: 245–250). In six of the cantons in which private banks were unregulated, a banknote tax of at most 1 % of the circulating notes’ face value was in place (Ernst 1904: 46–47).[7] No changes were made to the cantonal laws between 1874 and 1879 (Ernst 1904: 46; Bundesrath 1880). In 1879, there were thus 5 cantons with regulations that according to Selgin and White (1994) have to be absent in order for a free banking system to exist. In six other cantons note taxes were raised. In 1879, Switzerland consisted of 25 cantons.[8] With 80 %, or roughly 60 % if note taxes are considered, of the cantonal jurisdictions meeting the standard proposed by Selgin and White (1994), it is safe to say with Briones and Rockoff (2005: 279) that banking in Switzerland overall was very “lightly regulated.”

The Swiss development suggests that there is neither a natural monopoly in the production of money nor does the market fail to provide money due to problems of externalities or information asymmetries that make the stable private provision of money either impossible or inefficient. First, during the period of free banking no dominant bank evolved. In 1880, the four largest banks, measured by their share of the overall notes issued, accounted for 41 % of the notes in circulation, with the largest bank accounting for 15 % of all notes issued, providing evidence in support of the thesis that there is no natural monopoly in the production of bank-issued money.[9]

Second, the involvement of cantonal banks side by side with private banks in the production of money in Switzerland suggests that a fiscal theory (Selgin and White 1999) is more appropriate to explain the government’s role in the production of money than explanations based on market failure arguments. Swiss cantonal

[6] Translated from German into English by the present author.

[7] Landmann (1905: 2; 1910: 10) contends that all except one canton, Neuenburg, had implemented a note tax. There is, however, no evidence to be found for this claim in Bundesrath (1875) or Bundesrath (1880) and Bundesrath (1880) contains a list of seven cantons that explicitly did not have a note tax.

[8] The canton Jura was not formed until 1979.

[9] The present author’s calculations are based on Jöhr (1915: 424–439)

governments did not engage in the production of money with the aim of eradicating undesirable effects of externalities or information asymmetries. Rather they provided banking services, such as the issuing of banknotes, in order to increase the revenue of cantonal governments (Jöhr 1915: 6–7 and 92).

Some cantonal governments granted privileges to cantonal banks that were not available to private banks. In those cases cantonal banks were exempt from taxes and fees that private banks had to pay, cantonal governments guaranteed the notes issued by cantonal banks, or cantonal governments accepted notes issued by cantonal banks at par for tax payments and other kinds of transactions (Meyer 1903: 14–16; Ernst 1904: 43–47). These measures as well as the complete exclusion of private banks from issuing of banknotes in two cantons (Bundesrath 1875: 245–250) appear to be means to reduce the competition faced by cantonal banks rather than means to protect the public from the alleged instability of private note-issuing. The privileges created by some cantonal governments for cantonal banks allowed them to more successfully compete with private institutions, increasing the potential for cantonal banks to serve as revenue sources for the respective cantonal governments.

2.2 From the first note issues to at par acceptance

The evolution of the Swiss banking system closely followed the stylized stages of development of a free banking system laid out by Selgin and White (1987). After the introduction of banknotes redeemable for commodity money, note circulation is expected to be limited to the area in close proximity of the issuing banks as the transition from the use of coins to the use of notes as primary medium of exchange takes place. It is *ceteris paribus* less costly for customers to be informed whether a local bank is in good standing than being informed whether a distant bank is in good standing and costumers are more familiar with the appearance of the notes of a local bank, making them less prone to fall victim to forgers. These factors lead to diseconomies in geographical scale for issuing banks. It is more costly to build up a reputation of being a sound institution the farther a customer is situated away from the place of issue (Selgin and White 1987: 445). Such a pattern of note circulation can be observed in Switzerland during the first decades after the first Swiss banknotes had been brought into circulation in 1826. Jöhr (1915: 30) remarks that by 1850 the circulation of banknotes was mostly still constrained to the immediate vicinity of the issuing bank and only seldom did banknotes find their way into the territory of another issuing bank (see also Nedwed (1992: 318)).[10]

Selgin and White (1987: 445–446) expect note brokers to specialize in buying nonlocal notes that sell for a discount and reselling them without a discount near their place of issue as long as notes circulate mostly regionally. Competition among note brokers ultimately reduces the discount on nonlocal notes to the transaction and transport costs incurred by the note brokers. Banks will compete with note brokers.

[10] The territorial separation of the independent cantons was in part reduced in 1848 when the first Swiss constitution gave rise to a federal political structure, leading to a loss of autonomy of the cantons as self-governing units and the removal of exchange controls between the cantons (Weber 1992: 191). In the course of the formation of the federation, the Swiss Franc was introduced as the uniform Swiss currency in 1850 under vehement protests from banks in the German speaking part of Switzerland (Gygax 1907: 55–61). Before 1850, Swiss banks had issued notes denominated in various foreign currencies adding to the geographical barriers for the circulation of notes (Weber 1988; Jöhr 1915: 17–34).

Banks can earn a profit by buying nonlocal notes with their own notes as long as they can redeem the foreign notes faster than their own notes are redeemed, because they can invest the acquired funds in the meantime. Banks are expected to outcompete note brokers, because banks can use their own notes to buy foreign notes, whereas the brokers have to acquire a costly stock of money to be able to engage in their business. Selgin and White (1987: 446) expect the banks to ultimately accept one another's notes at par if transaction and transportation costs are low enough, because each bank has an incentive to accept the notes from other banks in an effort to increase the circulation of its own notes.

Although I am not aware of an account of the role of note brokers in Switzerland, the first signs of overlaps of the note circulation areas of different banks in Switzerland can already be found before 1850. In 1848, the Bank in Zürich, which issued notes denominated in Brabanterthaler, and the Bank in Basel, which issued notes denominated in French Franc, each agreed to accept the notes of the other bank at exchange rates that were frequently announced in widely-read newspapers (Bleuler 1911: 267–268). After the introduction of the Swiss Franc in 1850 these two banks renewed their arrangement and in 1852 agreed to accept one another's notes against a fee of 1 per mille of the notes' denomination (Bleuler 1911: 267–268).[11] During the 1850's several such bilateral agreements came into existence between various note issuing banks (Bleuler 1911: 269; Ernst 1904: 48; Jöhr 1915: 99). In 1864, three of the largest private banks entered a multilateral agreement to accept one another's notes without charging a fee (Bleuler 1911: 271; Ernst 1904: 48), giving rise to the at par acceptance among banks expected by Selgin and White (1987). Other banks wanted to join the agreement but the three banks denied them access to it. Eight other banks then agreed to accept one another's notes at par, whereas the notes of the three banks of the first agreement were accepted only against a fee of 1 per mille (Ernst 1904: 49; Bleuler 1911: 273).

As the next step of the evolution of a free banking system Selgin and White (1987: 448–449) predict the emergence of at first bilateral and later multilateral clearing agreements. Clearing agreements reduce the banks' reserve requirements by offsetting claims, which would otherwise have to be settled through the transfer of commodity money. In 1876, 21 Swiss banks agreed to accept one another's notes at par and installed a clearing center at the Bank in Zürich.[12] During the following years another three banks joined, leaving 15, mostly smaller, banks outside of the agreement (Jöhr 1915: 100; Ernst 1904: 78–79; Bleuler 1911: 279). As posited by Selgin and White (1987) the goal of the member banks was to reduce the costly transfer of specie from bank to bank (Bleuler 1911: 280). Selgin and White (1987: 450) further suggest that the role of the clearing agreement does not have to be limited to the settlement of reciprocal claims and they mention functions such as information sharing concerning bounced checks and forgeries, provision of information concerning the standing of the member banks, and support for members in times of crises as activities that can be part of a clearing agreement. In the case of the Swiss clearing agreement each participating bank had to make its weekly cash balances and

[11] In 1859 the fee was reduced to ½ per mille (Bleuler 1911: 268).

[12] The Bank in Zürich was in part paid directly for its services and in part received remuneration in form of interest payments on deposits the participating banks made.

monthly balance sheets available to all other participating banks (Jöhr 1915: 100; Bleuler 1911: 280–281), enabling the banks to reliably evaluate one another's standing at low cost.

3 The federal banknote law of 1881 and its consequences, 1882–1907

The Swiss banking system, which until then closely matched the stylized path depicted by Selgin and White (1987), was prevented from further evolving mostly *naturally*, i.e. driven by decentralized market forces, by the introduction of the federal banknote law of 1881. It became effective on 1 July 1882 and led to the implementation of more severe regulatory measures than the ones previously in place in any of the cantons (Bundesrath 1880: 243–257)[13]:

(1) Cantonal and incorporated banks have to be authorized by the federal council to issue notes and have to have at least 0.5 million Francs in paid-in capital.[14]
(2) Banks can only issue notes up to the volume of twice their capital, reserves in specie have to cover 40 % of the issued notes, and the remaining 60 % have to be covered by government securities, guarantees by the canton in which the bank is situated, or, under severe constraints, commercial bills.
(3) Banknotes are provided by the federal government and differ only with respect to the issuer banks' names and signatures.
(4) Banks have to accept the notes issued by other banks as long as those banks redeemed their own notes on demand.
(5) Banks have to submit weekly, monthly, and annual balance sheets.

With these federal restrictions in place, none of the cantons experienced free banking according to the conditions laid out by Selgin and White (1994) anymore. For instance, by requiring a minimum of paid-in capital it erected nationwide legal barriers of entry and by imposing reserve requirements it affected the mix of assets held by banks.

Nonetheless, Neldner (1992) argues that free banking persisted after 1882. Neldner refers to Jöhr (1915: 191) who states that "the law of 1881 adhered to the principle of free banking" and argues that neither the specie nor the securities reserve requirements were ever binding (Neldner 1992: 752).[15] Table 1 presents averages by decade of the fraction of issued notes covered by specie for three groups of banks; private commercial, cantonal, and local banks. The percentage of notes issued that were covered by metallic reserves dropped considerably over the period from the 1840s to the 1870s. Throughout the 1870s—the decade directly preceding the implementation of the national banknote law—the average coverage had dropped to roughly 50 % of the note issue. For private banks this rate had still been 71 % during the 1850s. Since the Swiss free banking system had at large a tendency to become more sophisticated along the path laid out by Selgin and White (1987), I posit that in the absence of the

[13] Translated from German into English by the present author.
[14] Private individuals could no longer issue notes.
[15] Translated from German into English by present the author. Adolf Jöhr, on whom Neldner (1992) relies heavily throughout his work, was the general secretary of the Swiss central bank while writing his book over the years 1912–1914.

Table 1 Specie Reserves as Percent of Issued Notes Averages by Decades for Three Groups of Banks

	1831–40	1841–50	1851–60	1861–70	1871–80	1881–90	1891–00	1901–06
Private commercial banks	51 %	78 %	71 %	82 %	52 %	51 %	48 %	48 %
Cantonal banks	132 %	136 %	55 %	55 %	48 %	56 %	54 %	55 %
Local banks	98 %	196 %	78 %	70 %	48 %	51 %	49 %	47 %

The table is based on Jöhr (1915: 499, 31, and 92). Over the period 1831 to 1850 there was only one local bank, the Depositokasse der Stadt Bern. Some of the local banks had a mixed ownership structure consisting of private and public shareholders. The data for the period 1841–1850 is influenced by the political changes in Europe over the years 1848 and 1849 during vast amounts of specie from foreign countries were deposited at Swiss bank due to Switzerland's relatively stable political situation

reserve requirements brought about by the federal banknote law of 1881, the reserve ratios would have continued to fall over time. The claim that the regulations were not binding, because the banks made sure to hold enough reserves to comply with the regulations, including a buffer stock to be prepared for unexpected events, is therefore questionable.

Further, the regulations had an effect on the relative competitiveness of cantonal and private note-issuing banks. As mentioned under point (2) above, cantonal banks could rely on guarantees of their respective cantons for 60 % of their note circulation whereas private banks had to hold either government securities or certain commercial bills to cover the remaining 60 %. This requirement increased the costs for private banks to issue notes relative to cantonal banks, since it gave them less freedom concerning the composition of their portfolios. Hence, it is not surprising that cantonal note issuing banks became relatively more prominent. In 1880, there were 22 non-cantonal and 14 cantonal note-issuing banks, whereas in 1906 there were 14 non-cantonal and 22 cantonal banks that issued notes (Jöhr 1915: 191).[16] Over the same period of time, the cantonal banks were able to raise their share of the total circulation of banknotes from 43 % in 1880 to 59.5 % in 1906 (Nedwed 1992: 83). It appears as if the federal regulations did in fact make a difference; they favored cantonal banks over other note-issuing banks.

As do Briones and Rockoff (2005: 309), I therefore agree with Weber (1992) that the federal banknote law of 1881 effectively turned the Swiss banking system into a *non-free* system. Although notes were still issued by banks that competed for note

[16] Hickson and Turner (2004: 912) also consider the period from 1881 to 1906 one of lightly regulated free banking but, in contrast to Neldner, argue that the regulations in place successfully prevented over-issue. In their overview of historical episodes of lightly regulated banking systems, Hickson and Turner (2004: 906) split the experience in Switzerland into two episodes 1834–81 and 1881–1906. They argue that in the early period, depending on the canton, there were restrictions on investment in real-estate, investment in securities, insurance activity, note issue, deposit issue, and reserve requirements in place. This is at odds with the statements referred to above made by Ernst (1904) and Bundesrath (1875, 1880) to which Hickson and Turner (2004: 906) refer via Landmann (1910: 10). They also refer to Weber (1992: 196) as source for information on cantonal note issue limitations in proportion to paid in capital. On the referenced page, however, Weber (1992: 196) discusses the measures implemented by the banknote law of 1881 instead of cantonal regulations.

holders, investigations of the Swiss banking system from 1882 to 1906 should thus not be considered as analyses of the functioning of a free banking system.

4 Deviations from the stylized path—Swiss complications

Concerning the evolution of a free banking system, Selgin and White (1987: 440) observe that "the path of development, rather than being one of steady progress (…), may in practice involve false starts or creative leaps." That does not, however, entail that these deviations are random and defy explanations by economists. I identify two Swiss banking phenomena, which can be understood as such deviations from Selgin and White's stylized path of the development of a free banking system, and provide an explanation for their existence and persistence. First, in 1878 the banks that took part in the 1876 clearing agreement discussed in Section 2 went back to bilateral clearings. They decided to only allow member banks to send foreign notes of other member banks directly to them instead of using the clearing center at the Bank in Zürich, because from the perspective of the bankers the notes kept on flowing back to the issuing banks "too quickly" (Bleuler 1911: 281). This development de facto ended the multilateral clearing agreement for banknotes and substituted it by a multitude of bilateral relationships. In 1882, 19 banks came together for a clearing agreement succeeding the agreement of 1876 and 6 additional banks joined later, but the volume of notes flowing through the clearing house was not large to begin with and further declined over the 1880s. The amount of claims cleared through the clearing house throughout the 1890s remained minor (Ernst 1904: 80–81; Bleuler 1911: 282–290; Jöhr 1915: 205). A third agreement in 1901 did also not turn the country-wide clearing house into a significant organization (Jöhr 1915: 207–208).[17] Because the initial move back from multilateral to bilateral clearing agreements already occurred in 1878, the implementation of the banknote law in 1882 cannot have caused the initial step away from the stylized path of the development of a mature banking system in 1878.

Second, during the 1880s and the 1890s the Swiss Franc was continually pushed beyond the upper gold point. According to Neldner (1998: 292; 1996a: 189) and Nedwed (1992: 322-324) this was caused by continuing excessive note issues of Swiss banks. Arbitrageurs grasped the opportunity and used Swiss banknotes to buy gold in Switzerland only to cross the border to France and sell it again. The received French bills of exchange or banknotes were then exchanged for Swiss notes and the process started anew (Ernst 1904: 82; Nedwed 1992: 323–324; Jöhr 1915: 240; Debes 1908: 70–73).[18] In his explanation of the excessive note issue Neldner stresses the role of "undersized banks" and "new entrants" that overissued (Neldner 1998:

[17] In 1891, a clearing house for the region Zürich was established and attracted a considerable volume that grew continuously over the 1890s (Ernst 1904: 83–84). Ernst (1904: 84) also points to the existence of similar regional clearing houses in other areas of Switzerland; for instance Basel.

[18] Since the arbitrageurs operated in the region close to France, they presented Swiss Francs for redemption at only a few banks. Between 1890 and 1904, the Banque du Commerce in Geneva had to redeem about 50 % of the excess notes. For the years 1898 and 1899 only about 60 % of the notes presented for redemption at the Banque du Commerce in Geneva had been issued by other banks although Banque du Commerce in Geneva's market share was only 8.3 % and 10.5 % respectively (Neldner 1998, 292).

292). Whereas Nedwed (1992: 249, 305–314, and 327–328) argues that mainly due to perfect substitutability of banknotes from different banks, individual banks could overissue temporarily, which gave rise to a relatively constant degree of overall permanent overissue as banks immediately reissued notes that flowed back to them.[19]

Since the arbitrageurs operated in the region close to France, they presented Swiss Francs for redemption only at the banks situated close to France. Between 1890 and 1904, the Banque du Commerce in Geneva had to redeem about 50 % of the excess notes. Interestingly, the banks faced with the redemption requests of arbitrageurs did not send the notes issued by other banks back to the issuers. Instead, the affected banks bought French bills of exchange and banknotes, exchanged them for specie in France and refilled their metallic reserves, thereby not allowing the Swiss Franc to appreciate relative to the French Franc (Neldner 1998: 292–293).[20] Because none of the regulations of the banknote law of 1881 kept banks from presenting foreign notes at the bank of issue, referring to the regulations is not sufficient to explain why the banks that had to suffer from the activities of the arbitrageurs did not present foreign notes at the banks of issue. [21]

Then why were the clearing agreements so little effective and why did the banks, which were frequented by the arbitrageurs, not present the notes for redemption at the banks that issued them? Neldner (1998: 295) refers to Bleuler (1913: 281) who argues that clearings through a clearing house were thought to have negative effects on the overall volume of notes issued. As could be expected in a system of competitive note issue, when banks requested specie they were partially paid in their own notes, thereby reducing the overall stock of notes held outside the issuing banks. Neldner (1998: 293) also points to Meyer (1903: 255) who reports that banks tried to keep inter-bank specie transports to a minimum to reduce costs. Over time, not presenting one another's banknotes for redemption was established as a custom between the issuing banks (Neldner 1998: 295).[22] Neldner (1998: 290) interprets these developments as evidence in support of the thesis that free banking systems are inherently prone to the overissue of banknotes.

Although from 1882 onwards the Swiss banking system cannot be considered as one of free banking, the framework provided by Selgin and White (1987) opens the door to an alternative interpretation of the developments. The bankers' attitudes towards clearing mechanisms can with Selgin and White (1987: 440) be considered as "false starts or creative leaps". Why did these deviations persist over time? Individuals make mistakes; bankers included. Entrepreneurs accept projects that should have been rejected and at the same time do not allocate resources to projects that should have been realized (Boettke 1997: 32). Within the given institutional framework of a market economy, however, the entrepreneurial process ensures that a

[19] Nedwed (1992, 249) notes that under a gold standard "continuous increases" in the amount of notes issued are obviously impossible.

[20] In 1899, the note issuing banks even came to an agreement to partially reimburse the affected banks for their costs incurred through the import of specie. For details on the agreement see, for instance, Jöhr (1915: 241–243).

[21] Note that non-discrimination among banknotes from different banks by the customers cannot be the explanation of continuous overissue by some banks as long as the notes of various banks are identifiable and the redeeming banks can in principle return notes to the issuing banks, as was the case in Switzerland.

[22] Nedwed (1992) does not appear to attempt to provide an answer for why the affected banks did not return the notes presented to them for redemption to the banks of issue.

tendency towards market equilibrium prevails (Kirzner 1973). As Kirzner (1979: 30) writes, "the market process emerges as the necessary implication of the circumstances that people act, and that in their actions they err, discover their errors, and tend to revise their actions in a direction likely to be less erroneous than before." Entrepreneurs in the market economy receive price signals that provide *ex ante* orientation as to what projects might be profitable and allow them *ex post* to assess their actions; they can make use of economic calculation. Agents in the market place therefore face a mechanism of "tight feedback" that individuals acting in the polity, where market prices, residual claimancy, and transferable private ownership are absent, do not face (Martin 2010).

But the feedback mechanism that market participants face is not equally tight across various activities they can engage in. As far as private activities on the market place are concerned, Martin (2010: 230) argues that the exploitation of price differences ("Market Arbitrage") implies the tightest feedback. Schumpeterian entrepreneurship ("Market Innovation") can also be based on economic calculation but the feedback from the extended order of the market is less tight in this case. The private use of consumer goods for non-pecuniary ends ("Private Consumption") is not the result of economic calculation and when engaging in these activities the agents receive the loosest feedback out of the three categories Martin presents.

Although Martin (2010: 230) focuses on the creation of new goods when discussing "Market Innovation", Schumpeterian entrepreneurship also entails "the carrying out of the new organization of any industry" (Schumpeter 1934: 66), of which the rules of interaction between firms of the same industry are a constituting element. Prices for substitutes of new goods can be observed in the market place, allowing for economic calculation in the absence of prices directly available for the new good (Martin 2010: 230). Prices for alternatives of a new rule of conducting business with other market participants, as well as rules of internal governance of an organization, cannot be observed in the market. They can only be assessed indirectly through their effect on the profitability of a project or the whole enterprise, giving the entrepreneur access to a looser feedback mechanism than in the case of the introduction of a new good. Therefore more mistakes that persist longer can be expected in the case of innovation of institutions than the innovation of goods and services.

These insights can be applied to the case of Swiss banking. The feedback from the system of rules concerning the presentation of one another's banknotes appears to have been too loose to induce the bankers to change their beliefs concerning clearing agreements and note redemption. It appears that they expected to gain from not redeeming one another's notes and from the move back from relatively fast and cheap multilateral to relatively slow and expensive bilateral clearings. The banks expected to gain from an increase of the overall amount of notes in the banking system. However, since each bank had to hold non-interest bearing foreign notes longer in exchange for keeping its own notes in circulation longer, the banks were falsely expecting to gain from staying away from more elaborate clearing mechanisms.

Neither the move back to bilateral agreements nor not redeeming one another's notes could increase the *net* amount of overall notes in circulation in the banking system, i.e. the stock of notes held by the customers of all banks. Instead, they were holding one another's non-interest bearing notes without any direct effect on the extent to which they could hold revenue generating assets (compared to the situation in which they would always redeem all foreign notes immediately) and created the opportunity for some banks to overissue at the expense of other banks that decided to refill their specie reserves by buying gold or silver instead of returning foreign notes to the issuing banks. The beliefs held by the bankers, which led to a custom that kept the clearing mechanism from functioning well, do not warrant the conclusion that a free banking system is impractical. Rather these deviations from the stylized path depicted by Selgin and White (1987) can be regarded as the consequence of the relatively loose feedback mechanism that agents face in the market place with respect to rules of economic organization.

5 Concluding remarks

My analysis warrants three final remarks. First, most stages of development of a free banking system outlined by Selgin and White (1987) can be identified during the evolution of the Swiss banking system during the 19th century. The evolutionary approach also allows accounting for deviations from the laid out path of development before and after the heavy banking regulations introduced with the banknote law in 1882. Nonetheless, especially the events in Switzerland during the last two decades of the 19th century warrant further research to shed additional light on the functioning of a system of competitive note issue under wide-ranging regulations.

Second, the understanding of free banking as an evolving system implies that for an investigation of an era of free banking it is not appropriate to compare a snapshot of the system at a certain point in time to an ideal mature systems of free banking. Rather it is appropriate to provide a detailed analysis of the free banking system over time that takes the specific institutional circumstances into account. The framework for assessing the Swiss free banking experience used here could in the future serve as a fruitful basis for such analyses of other episodes of free banking.

Third, how can the performance of a banking system as a whole be evaluated? White (1992: 112) proposes a microeconomic criterion, focusing on how well a banking system serves “the interests of the individuals who use money, as those individuals themselves see their interests.” How well were the Swiss customers served? During the era of competitive note issue there was no tendency for the banking system to “end in an orgy of inflation and wildcat banking” (Briones and Rockoff 2005: 289). During the period of free banking from 1826 to 1881 and the period of competitive note issue under the federal regulations from 1882 to 1906, only two banks experienced a run on them (Jöhr 1915: 92) and two banks failed, while the notes held by customers were never devalued (Neldner 1998: 289–290). Some banks incurred losses through the continuous restocking of metallic reserves over the two decades preceding the installment of the central bank in 1907, but the customers enjoyed reliable banking services throughout. Accordingly, competitive note issue in Switzerland has to be considered as a success form the money users’ point of view.

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References

Bleuler, W. (1911). *Die Bank in Zürich, 1836–1906*. Zürich.

Boettke, P. J. (1997). Where did economics go wrong? modern economics as a flight from reality. *Critical Review, 11*(1), 11–64.

Bordo, M., & James, H. (2007). De 1907 à 1946: Enfance heureuse ou adolescence difficile. In Banque National Suisse (Ed.), *Banque Nationale Suisse, 1907–2007* (pp. 29–115). Zürich: NZZ.

Briones, I., & Rockoff, H. (2005). Do economists reach a conclusion on free-banking episodes? *Economic Journal Watch, 2*(2), 279–324.

Bundesrath. (1875). Bericht des Bundesrathes an die hohe Bundesversammlung, betreffend das Bankwesen. *Schweizerisches Bundesblatt, 27*(3), 244–250.

Bundesrath. (1880). Botschaft des Bundesrathes an die hohe Bundesversammlung, betreffend die Ausgabe und Einlösung von Banknoten. *Schweizerisches Bundesblatt, 32*(3), 223–257.

Debes, R. (1908). *Banque du Commerce de Genève*. St. Gallen: Honegger'sche Buchdruckerei.

Dowd, K. (1992). *The experience of free banking*. London: Routledge.

Ernst, H. (1904). *Eine Schweizerische Bundesbank*. Winterthur: Geschwister Ziegler.

Fick, H. (1863). Die Schweizerische Bankgesetzgebung. *Jahrbücher für Nationalökonomie und Statistik, 1*, 78–87.

Gygax, P. (1907). *Bank in St. Gallen, 1837–1907*. St. Gallen: Zollikofer & Cie.

Hayek, F. A. (1978). *Denationalisation of money* (2nd ed.). London: Institute of Economic Affairs.

Hickson, C. R., & Turner, J. D. (2004). Free banking and the stability of early joint-stock banking. *Cambridge Journal of Economics, 28*(6), 903–919.

Jöhr, A. (1915). *Die Schweizerischen Notenbanken, 1826–1913*. Zürich: Art. Institut Orell Füsli.

Kirzner, I. M. (1973). *Competition and entrepreneurship*. Chicago: The University of Chicago Press.

Kirzner, I. M. (1979). *Perception, opportunity and profit*. Chicago: University of Chicago Press.

Landmann, J. (1905). *Das Schweizerische Bankgesetz*. Zürich: Schulthess & Co.

Landmann, J. (1910). *The Swiss banking law. Study and criticism of the Swiss legislation respecting banks of issue, and especially of the Federal Act of October 6, 1905, concerning the Swiss National Bank*. Washington: GPO.

Martin, A. G. (2010). Emergent politics and the power of ideas. *Studies in Emergent Orders, 3*, 212–245.

Meyer, R. (1903). *Les Banques d'Emission Suisses et le Drainage des Ecus*. Lille: Le Bigot Frères.

Nedwed, H. (1992). *Notenbankenfreiheit: Theoretische Analyse und historische Erfahrungen aus der Schweiz im 19.* Jahrhundert. Ganzmann: Basel.

Neldner, M. (1992). The experience of free banking. *Review of World Economics, 128*(4), 749–756.

Neldner, M. (1996a). Bankenfreiheit und Noten-Überemission. McCulloch, Longfield, der Schweizer Franken und die 'small note mania' in Schottland. *Schweizerische Zeitschrift für Volkswirtschaft und Statistik, 132*(2), 177–195.

Neldner, M. (1996b). Schweizerische Notenbanken im 19. Jahrhundert und Free Banking: Eine Erwiderung. *Schweizerische Zeitschrift für Volkswirtschaft und Statistik, 132*(2), 203–206.

Neldner, M. (1998). Lessons from the free banking era in Switzerland: the law of adverse clearings and the role of non-issuing credit banks. *European Review of Economic History, 2*, 289–308.

Neldner, M. (2003). Competition necessarily tends to produce excess: the experience of free banking in Switzerland. *German Economic Review, 4*(3), 389–408.

Ritzmann, F. (1973). *Die Schweizer Banken*. Bern: Paul Haupt.

Ritzmann, F. (1996). Schweizerische Notenbanken im 19. Jahrhundert und Free Banking: Diskussionsbeitrag zu M. Neldner, Bankenfreiheit und Noten-Überemission. *Schweizerische Zeitschrift für Volkswirtschaft und Statistik, 132*(2), 197–201.

Schumpeter, J. A. (1934). *The theory of economic development*. Cambridge: Harvard University Press.

Selgin, G. A., & White, L. H. (1987). The evolution of a free banking system. *Economic Inquiry, 25*(3), 439–457.

Selgin, G. A., & White, L. H. (1994). How would the invisible hand handle money? *Journal of Economic Literature, 32*(4), 1718–1749.

Selgin, G. A., & White, L. H. (1999). A fiscal theory of government's role in money. *Economic Inquiry, 37*(1), 154–165.

Weber, E. J. (1988). Currency competition in Switzerland, 1826–1850. *Kyklos, 41*(3), 459–478.

Weber, E. J. (1992). Free banking in Switzerland after the liberal revolutions in the nineteenth century. In K. Dowd (Ed.), *The experience of free banking* (pp. 187–205). London: Routledge.

White, L. H. (1984). *Free banking in Britain. Theory, experience, and debate, 1800–1845*. Cambridge: Cambridge University Press.

White, L. H. (1992). Free banking and the gold standard. In L. H. Rockwell (Ed.), *The gold standard* (pp. 113–128). Auburn: Ludwig von Mises Institute.