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The Rational of Private Bank Note Issuance The Enskilda Banks in the Economic and Financial Development of Nineteenth Century Sweden

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ABSTRACT

First established during the 1830's, the Enskilda banks were characterized by unlimited liability and the right to issue bank notes. In Swedish banking history, these banks have been considered to be primitive relics. This paper utilizes new data to revise this picture. Issuing notes based on an anchor provided by the National bank, the Enskilda banks made an important contribution to the development of liquid capital markets and for economic growth. The note issuance was also of importance to overcome shortages of liquidity due to both seasonal and regional variations in demand. In view of the crucial role of the Enskilda banks, the Banking Act of 1864, which permitted freer establishment and automatic prolongation of the charters for such banks, must be judged to have been an important institutional change.

JEL: E40; G21; N13; N23

Introduction

Wealthy countries have well developed financial sectors. Research shows that financial systems are important for economic growth and this was the case also for Sweden.¹ Thus, there should be a link between economic performance and the quality of the banking system.

This question of the importance of the Swedish banking system has also been the matter of a debate among international scholars. In 1978 Lars G. Sandberg published his article, "Banking and Economic Growth in Sweden Before World War I". Sandberg argued that the explanation of Swedish economic success, to a considerable extent, could be found in the early development of a sophisticated banking system. More generally, the relatively high level of education that had been achieved despite low income levels, permitted the development of a banking system well suited to the demands of a growing, credit based, economy. Indeed, the relative sophistication of the banking system was a major pillar supporting Swedish industrialization. Sandberg divided the Swedish banking history into an early and a modern period. The latter began in 1864 when limited liability banking was introduced and the usury law was repealed.²

Rejecting Sandberg's argument, Charles P. Kindleberger questioned whether the nineteenth century Swedish banking system truly could be considered "sophisticated". Moreover, he expressed doubt as to the importance of the banking system in promoting Swedish economic growth at that time. Kindleberger's skepticism was largely based on the observation that the Swedish banks participated only modestly in the export activities that generally were taken to be the driving force behind Swedish industrialization.³ Nonetheless, Douglas Fisher and Walter N. Thurman concluded that the decreasing velocity of circulation of means of payment from the 1870s was evidence of an increasingly sophisticated banking system and thus that the evidence supported Sandberg's point of view.⁴

The nineteenth century Swedish commercial banking system, the so called Enskilda (literally meaning private) banks, started to establish in the 1830s. The Enskilda banks

¹ For the case of Sweden see for instance Hansson and Jonung "Finance", Ögren "Financial Revolution". Sweden has also been included in several cross country studies such as Rousseau and Sylla "Financial Systems" and "Emerging Financial Markets" and Rousseau and Wachtel "Financial Intermediation"

² Sandberg "Banking" pp. 656-657

³ Kindleberger "Sweden" pp. 918-920

⁴ Fisher and Thurman "Sweden's Financial Sophistication" pp. 625, 627-631

were characterized by unlimited owner liability and the right to issue bank notes. The banking history literature portrays Enskilda banks in two ways:

1) Traditionally as a primitive relics, outdated with the arrival of the “modern” limited liability banks of *Credit Mobilier* type in 1864. These limited liability banks were financed by substantial equity capital and deposits instead of note issuance. The division of the “modern” and the “early” period in banking is usually set in 1856 or 1864. The repeated arguments for Swedish financial backwardness before the 1870s are the absence of a limited liability banking system relying on deposits and of liquid capital markets.⁵

2) As a case of free banking. This interpretation coincides with the boom in free banking literature in the 1980s. But, apart from the right to issue notes, the interpretation of the Enskilda banks as a case of free banking is not supported by empirics. Unlike the Enskilda bank notes that were inside money the National Bank notes were domestically high-powered money and thus functioned as base money; i.e. as reserves in the banking system.⁶

The fact that the Enskilda banks did not constitute a free banking system does not, however, mean that these banks were not beneficial for the economic and financial development of Sweden. In fact the system where the National Bank issued base money and the Enskilda banks based on that issued notes was beneficial for the Swedish financial development and economic modernization.⁷

At least during the first half of the nineteenth century, Sweden did indeed lack liquid capital markets. The most important capital markets were located in the two principal

⁵ An example of an anachronistic interpretation is the view of Brisman who wrote in the interwar period. A real and thus effective banking system required a central bank holding monopoly on note issuance, defending the fixed exchange rate by altering the discount rate, and commercial banks were to be non note issuing limited liability banks (see Brisman *Sveriges Affärsbanker* and “Den stora reformperioden”). Because of its emphasis on deposits, some scholars point to the establishment of Stockholms Enskilda Bank in 1856 as the birth of the “modern” banking system (see Nilsson *Banker* and Gaslander *History*) others to the entrance of limited liability banks (Fisher and Thurman “Sweden’s Financial Sophistication” p. 625, Sandberg “Banking” pp. 657, 663). But in all respects the Stockholm Enskilda Bank was an anomaly among the Enskilda banks (see Ögren *Empirical Studies* and “Free or Central Banking?”).

⁶ A boom that followed on Lawrence H. White’s book *Free Banking in Britain* from 1984. Lars Jonung argued the Enskilda banks to be a case of free banking without making a critical examination of the case, (Jonung “Economics”). This interpretation was quickly picked up by free banking theorists and presented as a successful case of free banking (see for instance Schuler “The world history”. Regarding the history and working of the Enskilda bank system and its relation to the National Bank, see Ögren *Empirical Studies* and “Free or Central Banking?”).

⁷ In Ögren’s “Free or Central Banking?” it is shown that the complementary system of the National bank that was functioning as a rudimentary central bank and the private Enskilda banks utilizing National bank

cities, Stockholm and Gothenburg.⁸ As banks convert illiquid assets into liquid liabilities, they serve to channel capital to activities where demand for it is greatest.⁹ Thus, a result of a successfully expanding banking system should be the creation of more liquid, and hence more efficient, capital markets.¹⁰

The fact that these banks were unlimited liability note issuing private banks was not a matter of chance. All business was at the time run with unlimited liability. The right to issue notes was seen by contemporaneous actors as a necessary prerequisite for the operation of a bank.¹¹ Perhaps the members of Parliament at the outset of the nineteenth century knew what form of banking system that was feasible in the poor and largely unmonetized economy which was lacking high-powered money in the form of specie and at the same time aimed at not deteriorating the value of the currency by over issuance of National bank notes.¹²

The question if the banking system was “modern” or not thus is an anachronistic question based on the view that a banking system has to operate with deposits or equity capital to finance its business. If the Swedish banking system was modern or sophisticated is really not the question. The question is if the Enskilda banks with their right to issue notes were beneficial for Swedish financial and economical development.

In order to analyze the development of the banking system over time I have collected a unique database on note issuing banks. It consists of balance sheet data at the end of each year from 1834 until 1900. I have also collected data on monthly basis from 1874 onwards.¹³ This makes it possible to construct long term series on the banking system’s

notes as reserves promoted financial deepening in Sweden. Furthermore this system contributed to economic growth and modernization (Ögren “Financial Revolution”).

⁸ See Lobell *Växelkurspolitik*.

⁹ See Diamond and Dybvig “Bank Runs” and Diamond and Rajan “Liquidity Risk”

¹⁰ Diamond “Liquidity” pp. 949-950

¹¹ See Ögren *Empirical Studies* Chapter 2. This chapter contains a study of the Parliamentary debate in Sweden concerning the nineteenth century banking system.

¹² It is well known that coins and other forms of specie was an exception in transactions in Sweden. That private banks and even companies and merchants issued promissory notes that were used as means of payments was a Swedish reality long before the birth of the Enskilda banks (see Brisman *Sveriges affärsbanker* and Hallendorf “Bankens öden”).

¹³ These were published in Post & Inrikes Tidning [hereafter POIT] for the years 1834 -1870 and in Sammandrag af Bankernas Uppgifter [hereafter Sammandrag] for 1871-1906. The years 1835-1846 have been supplemented with data from Sveriges Riksbank “Statistiska tabeller” pp. 172-179. These balance sheets are the only sources that include detailed information of the Enskilda banks’ assets and liabilities for the entire period. The accuracy and reliability of the figures reported by the banks might be questioned. When other sources differ from them, however, other sources than balance sheets are more favorable for the Enskilda banks in terms of the size of reserves (see Bankoutskottet Riksdagstryck 6:e

portfolios (assets and liabilities) such as lending, note issuance, reserves and so on. The data with higher frequency makes it possible to study the flexibility of the banking system in altering these portfolios as supplier of credit and means of payments.

The structure of the paper follows three questions: 1) Did the importance of the Enskilda banks decrease with the introduction of limited liability banking? 2) Why was the possibility to issue notes such an advantage that it was worth carrying the extra risk of unlimited liability? 3) Did the Enskilda banks promote the development of the financial system and the economy as a whole?

The results show that the system of Enskilda banks was well designed, given the institutional setting of the nineteenth century. The Enskilda banks contributed substantially to the creation of liquid financial markets, and by extension also to economic growth. The Act of 1864, essentially permitting the free establishment of Enskilda banks and the automatic renewal of their charters, thus played an important role in the financial and economic development in nineteenth century Sweden.

The Success of the Enskilda banks

The form of unlimited liability provided the owners of the Enskilda banks with a higher degree of risk than was the case for the owners of the limited liability banks. Thus, if the agents were rational and limited liability banks truly were superior to Enskilda banks, the post 1863 period should have witnessed a decrease in Enskilda banks and an expansion of limited liability banking.

In this section I show that this was not the case. Instead the Enskilda banks continued to dominate as banking system until the right to issue notes was revoked in 1903 in accordance with the banking act of 1897.

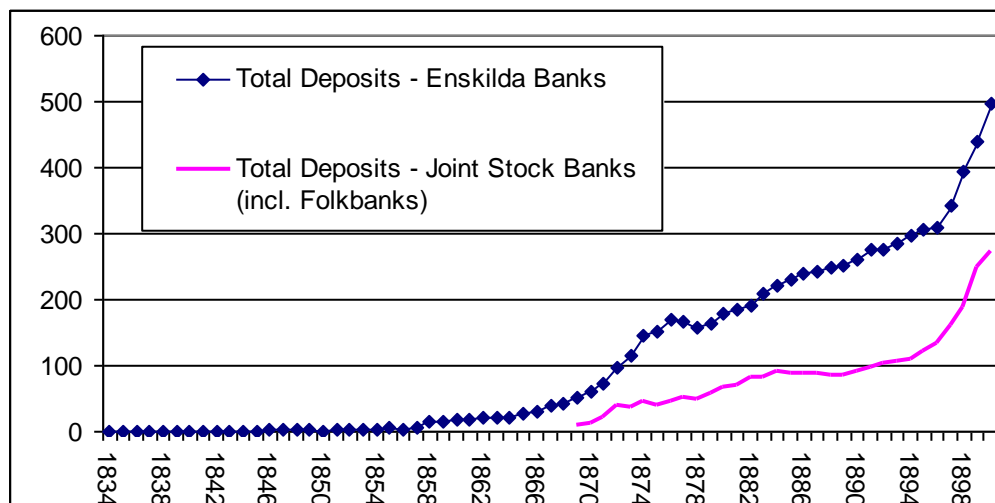
Bank Deposit Financing

The traditional argument for the superiority of the limited liability banks is that they, apart from the apparent advantage of limited liability, managed to pool resources by deposits instead of using something as backwards as the issuance of notes. If reliance on deposit financing is a measure of bank modernity, then the Enskilda banks pass the test.

samlingen [hereafter BaU] 1853/54, Brisman *Sveriges Affärsbanker. Grundläggningstiden* pp. 246-247, Finanskommittén 1858 Riksarkivet – ÅK No 496 Vol. 1 – 4 [hereafter Finanskommittén] and Sveriges Riksbank “Statistiska tabeller” pp. 172-179). After the year 1900 Enskilda bank notes in circulation demised drastically as a response to the coming ending in 1903. Due to the emphasis on the note issuance in this paper, 1900 is chosen as the ending year.

Indeed, Enskilda banks had accepted deposits right from their inception, although these were originally less important than notes. By 1867, deposits exceeded notes as a source of Enskilda bank financing. As demonstrated in Figure 1, until the turn of the twentieth century total Enskilda bank deposits considerably exceeded those of the limited liability banks.

Figure 1: Total Deposits in Enskilda and limited liability Banks, 1834 – 1900 (1,000,000's SEK)



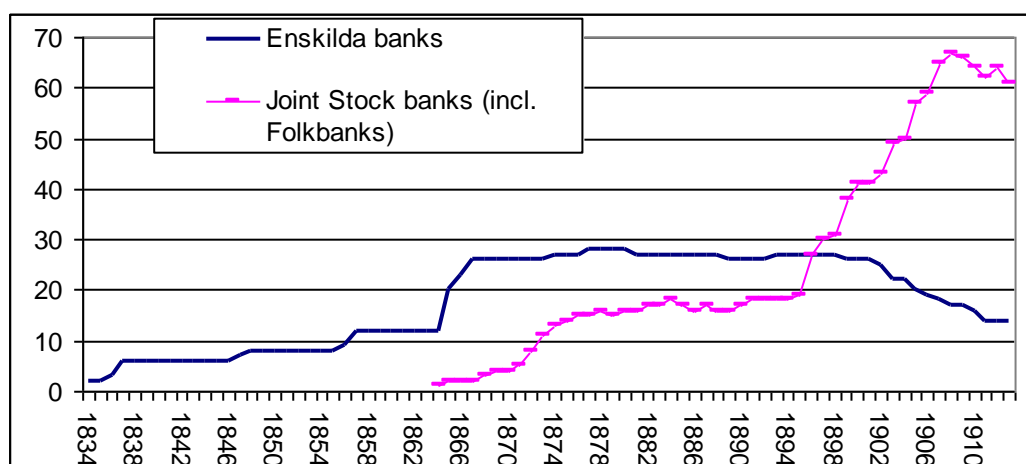
Sources: Post & Inrikes Tidning 1835-1871, Sammandrag af Bankernas Uppgifter, 1871-1900, Sveriges Riksbank (1931) pp. 172-185

Bank establishment

Even after limited liability banking was legalized and interest rate ceilings were abolished, Enskilda banks continued to be established. During the years 1864 through 1867, no less than fourteen new Enskilda banks were established, thus demonstrating that this form of banking hardly could have been obsolete.¹⁴ A single limited liability bank, the *Skandinaviska Kreditaktiebolag* was established in 1864 in Gothenburg, and it did rapidly assume an important position on the Swedish credit market. Previous to the second wave of limited liability bank establishments during the late 1890's, however, the only limited liability banks that can be considered to be commercial banks were established in Stockholm and Gothenburg, where capital markets already existed. The limited liability banks that appeared outside these two cities were small, so-called *folkbanks*. These were more akin to regional savings than to commercial banks.

¹⁴ Indeed, the last Enskilda bank was not established until 1893. It was located in Norrbotten, in the far north of Sweden where business still was suffering from a scarcity of capital.

Figure 2: No of Enskilda and limited liability Banks (including folkbanks), 1834-1913.



Sources: Post & Inrikes Tidning 1835-1871, Sammandrag af Bankernas Uppgifter, 1871-1911, Sveriges Riksbank (1931) pp.172-185

One piece of evidence used, first by Flux and later by Kindleberger, to argue that the Enskilda banks were not a successful form of banking is the small number of such banks established before the mid 1860's. This is taken as a sign that the demand for Enskilda bank credits was low.¹⁵

The true reason for the small number of new banks, however, was institutional in nature. The crown and influential groups in the parliament (the nobility) that were granted the monopoly privileges of establishing such banks of course had more to gain from preventing a massive establishment of banks. Not surprisingly the extract of monopoly rents made large groups dislike Enskilda banks and these started to act to inhibit the establishment of such additional banks. Prior to 1864, the Enskilda banks were required to obtain royal charters that were limited to ten years duration. At the end of that time, the bank had to close its operations and reapply. This explains why the Banking Act of 1864, which granted liberalized the prolongation of charters and the freedom to establish Enskilda banks, was so important.

Many of the Enskilda banks that were established during the late 1860's were former so-called "filial banks". These were a form of limited liability bank operating on the

¹⁵ Flux *Swedish Banking System*, Kindleberger "Sweden" p. 920

basis of credits from the Riksbank. When this form of banking was ended all of these filial banks chose to convert into Enskilda, and not limited liability, banks.¹⁶

It was only during the late 1890's, when a plethora of new banks were established, that the Enskilda banks ceased to be the primary form of bank. The reason behind this change, however, was institutional rather than strictly economic. The increase in the number of limited liability banks was also accelerated by legislation constraining savings bank behavior passed in 1892. Consequently a lot of savings banks were converted into *folkbanks*.¹⁷

The previously anticipated act rescinding the Enskilda banks' right to issue notes was enacted by Parliament in 1897. The right to issue notes was to end in 1903 and no notes were to be left in circulation after 1906. As seen in figure 2 Enskilda banks started to decrease in numbers around 1902. Many of these would merge with existing limited liability banks or reform as limited liability banks when their charter's ended. But apparently this did not happen until the right to issue notes was taken away.

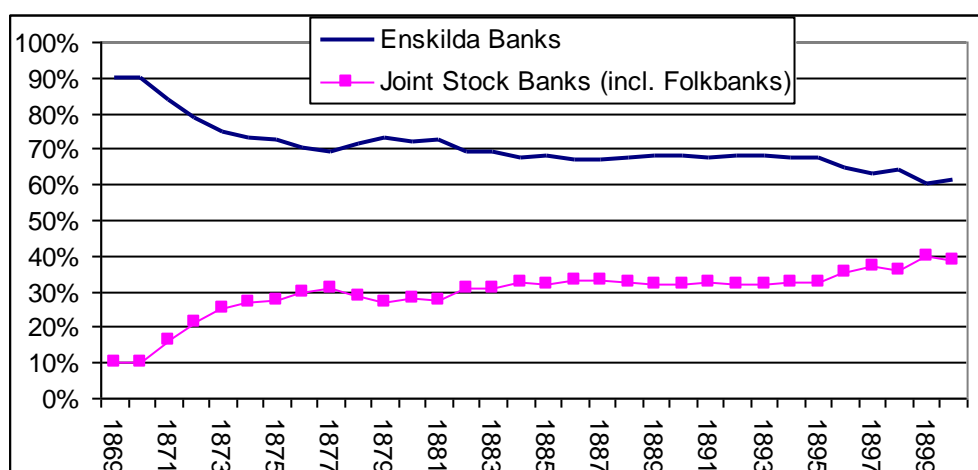
Bank assets

Also when comparing the size of the two banking systems, it is clear that the Enskilda banks constituted the dominant banking system until the end of the nineteenth century. In fact the same pattern reemerges when looking at total assets as in the case of the number of banks. From the mid 1870s the commercial banking sector consisted to approximately seventy percent of Enskilda banks after the initial establishment of limited liability banks in the main cities of Gothenburg and Stockholm.

¹⁶ When Parliament initiated these banks, the hope was that they would facilitate the replacement of Enskilda bank with Riksbank notes. Instead, the filial banks became major distributors of Enskilda bank notes, see Nilsson *Banker*, Ögren *Empirical Studies* Chapter 2.

¹⁷ Sjölander "Att reglera" p. 44

Figure 3: Enskilda and limited liability Banks Assets, 1869 – 1900 (percentage shares of total commercial bank assets).



Sources: Post & Inrikes Tidning 1870-1871, Sammandrag af Bankernas Uppgifter, 1871-1900, Sveriges Riksbank (1931) pp. 172-185

From the mid-1890s limited liability banking in shadow of the coming end of Enskilda bank note issuance closed in on the size of the Enskilda banks. In 1903 limited liability banks for the first time held more assets than did Enskilda banks. Thus when note issuance ended so did the dominance of the Enskilda banks.

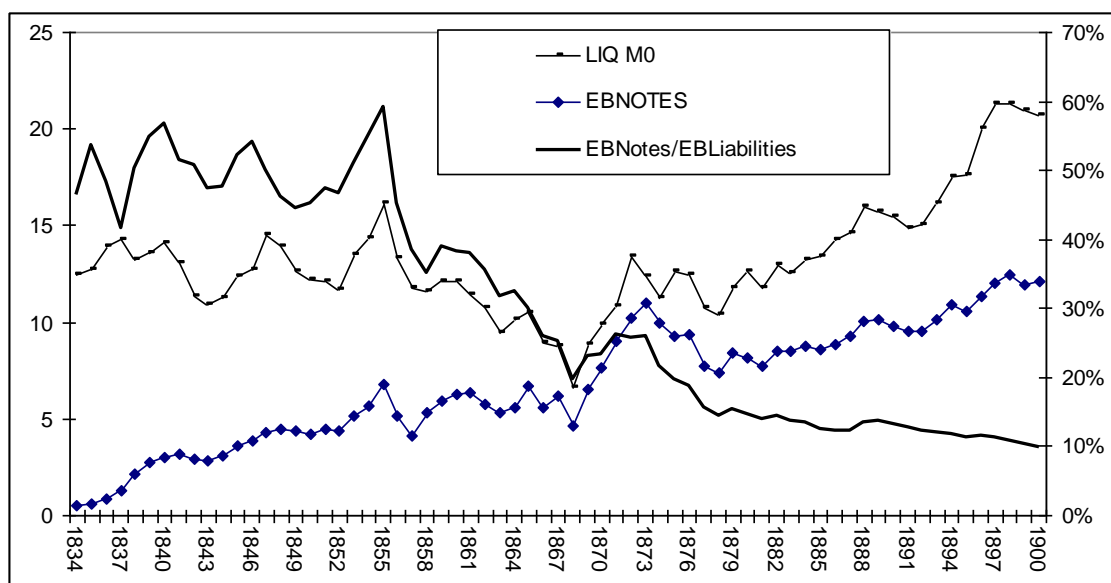
Since the Enskilda banks imposed unlimited liability on their owners, the question becomes why would anyone accept a greater personal risk in order to run or even to found an already outdated bank? This might be a question of path dependence but more likely is that this organizational form of banks had something that made it worth carrying the extra risk. As seen in this paper this extra value was the right to issue notes.

Enskilda Banks and the importance of note issuance

There is no doubt that the Enskilda banks performed an important service before the 1870's by supplying good quality means of payment. As early as 1859, the volume of Enskilda bank notes in circulation exceeded that of Riksbank notes, a situation that continued throughout the rest of the nineteenth century. While the share of notes in total Enskilda bank liabilities decreased, the absolute volume of notes in circulation continued to increase and peaked in 1900 (Figure 4).¹⁸

¹⁸ See Ögren *Empirical Studies* and “Free or Central Banking?”

Figure 4: Per Capita Total Liquidity (LIQ M0) (amount of Enskilda bank and National Bank notes Held by the Public), Enskilda Bank notes (EBNOTES) in Stable Prices (Left Y axis = SEK). Enskilda Bank notes in percentage of Total Enskilda Bank Liabilities (EBnotes/EBLiabilities)(Right Y axis), 1834 – 1900.



Sources: Post & Inrikes Tidning 1835-1871, Sammandrag af Bankernas Uppgifter, 1871-1900

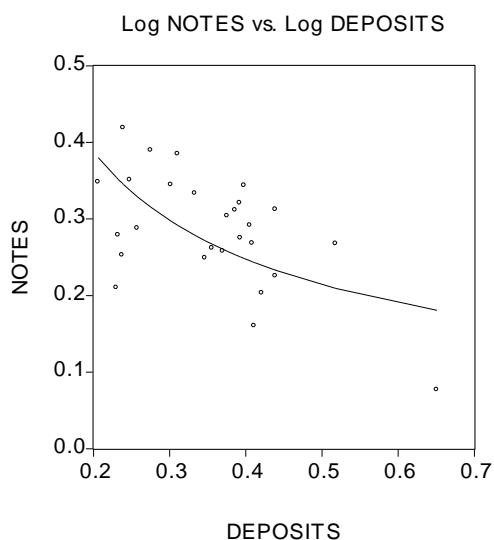
Overall note issuance diminished in importance after it had become possible to establish limited liability banks. But, the Enskilda banks still continued to dominate as banking form until the banking law of 1897 deprived them of the right to issue notes from 1903. As seen in figure 1 the number of Enskilda banks declined drastically after the implementation of this ban.

The possibility to issue notes thus was viewed as such an advantage when running a bank that this banking form was kept also after the entrance of the limited liability bank in the middle of the 1860s. The question thus is what did the note issuance provide that made it worth carrying the extra risk of unlimited liability instead of limited liability?

Regional differences in liquidity

The major cities were reasonably well supplied with credit and means of payment, but peripheral areas still suffered from a shortage of capital after 1870. The reliance on deposits varied geographically. A bank situated in Gothenburg or Stockholm, cities with their own capital markets, had greater opportunities to attract deposits than did rural banks. Thus, after 1863, the motive for opening a note issuing bank might be expected to be the supplying of credit to an area where deposits alone would not do the trick.

Figure 5: A Cross Sectional study of the relationship between Deposits and Notes (in percent of total liabilities) for all Enskilda banks in 1871 (Logarithmic values).

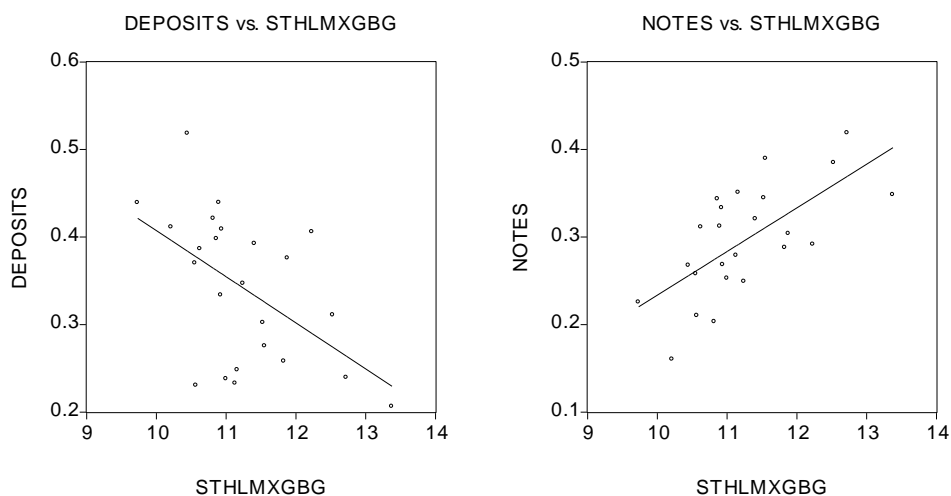


Source: Sammandrag af Bankernas Uppgifter 1871

Figure 5 shows that there was a negative relationship between the use of notes or deposits. Notes could be substituted for deposits in an area where capital was not available to such an extent that it could fund the bank's business.

Similarly in figure 6 we see that there was a negative relationship between holding of deposits and distances to Stockholm and Gothenburg whereas there was a positive one between note issuance and distances to these cities.

Figure 6: Cross Sectional studies of the relationship between Deposits and Distance to Stockholm times Gothenburg (left) and between Notes and Distance to Stockholm times Gothenburg (in percent of total liabilities) for all Enskilda banks in 1871 (Logarithmic values).



Sources: Sammandrag af Bankernas Uppgifter 1871, Motormännens Riksförbund (1999)

The regressions indicate a negative relationship between deposits as a percentage of total assets and a bank's distance from liquid capital markets. Another factor that might have been of importance for a bank's reliance on note issuance was how recent the bank was established. A newly established bank may have been more in need of utilizing the possibility to issue notes, but whether or not the bank was of recent origin (post 1864) did not significantly affect its reliance on deposits.

Table 1: Issued Notes, Deposits and Bond Holdings, as Percentages of Total Assets in 1871 and 1881 for Enskilda Banks Established Between 1865 and 1871, Arranged by Note Issuance in 1871.

Bank	Notes-1871	Notes-1881	Deposits-1871	Deposits-1881	Bonds-1871	Bonds-1881	Region
HernösandsEB	42%	24%	24%	44%	1%	5%	North
SundsvEB	38%	18%	31%	51%	0%	3%	North
WesterbEB	35%	20%	21%	46%	0%	4%	North
GefleLEB	32%	17%	39%	57%	3%	5%	North
SkarabLEB	31%	13%	44%	56%	0%	3%	West
ChristianstEB	30%	19%	38%	48%	2%	7%	West
CalmarEB	29%	13%	26%	50%	5%	13%	South
Ebi Christineh	28%	15%	23%	37%	0%	5%	West
UplandsEB	27%	13%	52%	63%	18%	21%	East
EB I Wernersb	26%	16%	37%	41%	3%	4%	West
GotlEB	25%	13%	24%	49%	0%	4%	South
SödermanlEB	23%	17%	44%	55%	8%	10%	East
BohusLEB	21%	16%	23%	47%	0%	5%	West
BoråsEB	16%	10%	41%	57%	1%	4%	West
All Enskilda banks	27%	16%	39%	53%	7%	9%	

Source: Sammandrag af Bankernas Uppgifter 1871, 1881

In table 1 we see that the banks in the north were utilizing the possibility to issue notes more than those in other areas. Deposit financing differed more among banks in various regions than did note issuance, but the banks closest to Stockholm and Gothenburg had the most deposits. The relative importance of notes diminished for all banks as increased overall liquidity permitted an increase in deposits. In absolute amounts, however, notes outstanding continued to increase for all banks.

Thus the possibility to issue notes was of vital importance for banks located in areas more remotely from Stockholm. But in fact several Enskilda banks also were established in close proximity to Stockholm and Gothenburg. Of the fourteen Enskilda banks that were established post 1864 five were established close to these cities. Thus, although the right to raise funds through note issuance was most important in peripheral

areas of Sweden, such as the northern parts, it was seen as important to some extent by banks in all regions.

Seasonal differences in liquidity

Since Enskilda banks were established also in areas where capital scarcity was not an acute problem, the question must be asked why the limited liability form of organization was not used?

The Enskilda banks did not exhaust their issuance quotas and thus (unlike the limited liability banks) could instantly relieve a temporary lack of liquidity by issuing notes.¹⁹ In an agricultural economy as Sweden in the nineteenth century, demand for liquidity would be seasonally volatile. With the right to issue notes the Enskilda banks were well suited to face changing demand for liquidity by easily altering their portfolios. This fact explains the willingness of owners to accept the greater risks of unlimited liability.

A large part of the lending of the Enskilda banks was in the form of granted credit – a credit which the holder could utilize at will. This credit, as all lending from the Enskilda banks, was made in the banks' own notes. And collaterals held by the Enskilda banks for this form of credit was a legal basis for note issuance. The seasonal flexibility in note issuance is supported in a regression analysis on the basis of the Enskilda bank note issuance.

¹⁹ Ögren "Free or Central Banking?" The legal basis of the Enskilda banks note issuance was determined by adding: a) their holdings of principal securities that amounted to three quarters of the equity capital plus their cash holdings in legal tender plus their holdings of specie plus the (estimated) value of collaterals they held for granted credits (see Ögren "Free or Central Banking?").

Table 2: OLS-Regression on the Seasonal Determinants of Enskilda Bank Note Issuance, 1878 – 1900, Monthly Data (276 observations).

Dependent Variable: DLOG(NOTES)				
Included observations: 275 after adjusting endpoints				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.01	0.00	-2.12	0.03
DLOG(LIQRES)	0.05	0.02	2.39	0.02
JANUARY	-0.05	0.01	-7.00	0.00
FEBRUARY	0.04	0.01	5.37	0.00
MARCH	0.07	0.01	9.86	0.00
APRIL	-0.02	0.01	-2.61	0.01
MAY	-0.02	0.01	-2.95	0.00
JUNE	0.04	0.01	5.00	0.00
JULY	-0.06	0.01	-8.04	0.00
AUGUST	0.03	0.01	4.77	0.00
SEPTEMBER	0.13	0.01	17.44	0.00
NOVEMBER	-0.03	0.01	-3.84	0.00
R-squared	0.78	Adjusted R-squared		0.77

The regression on seasonal determinants on Enskilda bank note issuance strongly supports that the Enskilda banks followed a seasonal pattern in their note issuance. The absolute most important peak every year was in the month of September when a lot of businesses conducted their annual clearing. Another important month was in March when payments for deliveries before the winter would be due. Notes would flow back to the Enskilda banks mainly in the months of January and July. All in all it seems as the dynamic over the year would allow the Enskilda banks to increase their note stock in circulation since the increases in note issuance were not fully met by decreases. Over time the Enskilda banks increased liquidity in the form of Enskilda bank notes in circulation. The question is if the development of the Enskilda banks contributed to the creation of liquid capital markets in Sweden?

Enskilda Banks and the Liquidity of the Swedish Capital Market

Banks make an important contribution to economic growth by converting illiquid assets into liquid liabilities. Doing so, however, exposes banks to the danger of runs, in turn forcing them to hold non-interest bearing liquid assets to be able to meet the demands of depositors and note holders. The more instantly redeemable liabilities a bank has, the more vulnerable it is to runs, and therefore the more liquid assets it needs to meet possible liquidity shocks. While more liquid assets reduces the likelihood of bank

failure, however, it also impedes credit creation and, thus, economic growth.²⁰ In brief, the level of liquid reserves reflects a trade off between the risk of bank failure and the demand for credit.

The trust engendered by a banking system, as well as its efficiency, might be measured in terms of the evolution of its liquid reserves. The level of the banks' liquid reserves is an indicator of the public's fear of bank failures. The less reserves the banks have to hold, the more efficient they can be in promoting financial development and economic growth.

The level of reserves is also related to the state of secondary asset markets. The more liquid these are, the more the banks can substitute interest bearing, for non-interest bearing, financial assets, thus further increasing capital market liquidity.

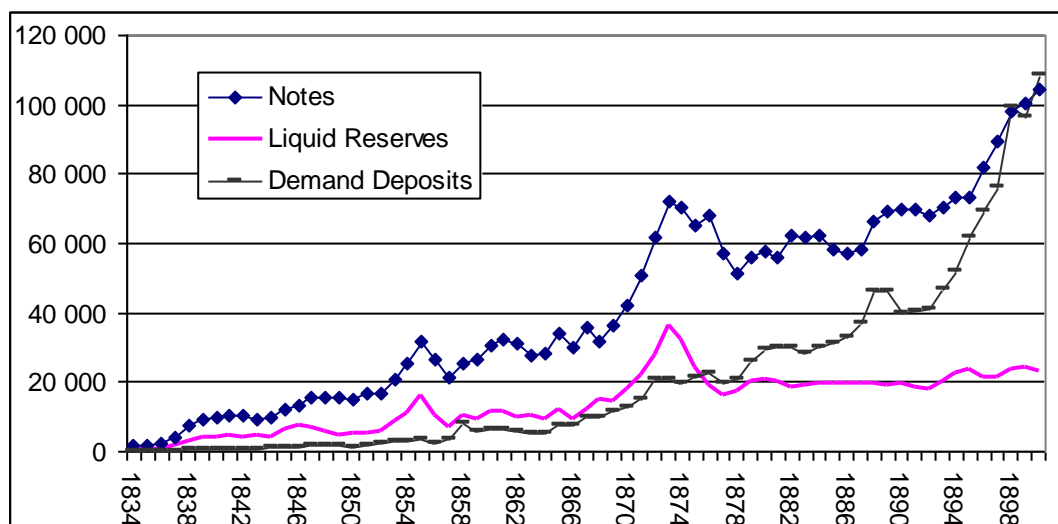
In order to allow holders of their notes to redeem these in legal tender, the Enskilda banks were forced to hold cash reserves. Assuming that the banks behaved efficiently, they would not hold excessive cash reserves. Thus, legal limitations on the right to issue notes only provided a framework for the banks' choices of reserves. Since the Enskilda banks issued less than their legally permissible quantity of notes, their effective issue was not limited by rules and regulations, rather it was limited by the public's demand that they hold sufficient legal tender. The Enskilda banks regularly published their balance sheets, providing a high level of transparency of their situation.

Unlike a free banking system, however, the Enskilda banks were operating with National Bank notes as reserves (instead of specie reserves). Specie became part of the reserves in 1878 when the banking law of 1874 was fully established but was never used for the redemption of Enskilda bank notes. Thus the Enskilda banks continued to use National Bank notes as reserves and held specie only to the extent the law required, despite the fact that National Bank notes no longer were legal basis for note issuance.²¹ The liquid reserves of the banks thus are defined as all their holdings in legal tender, i.e. National Bank notes and specie held at the bank, at its exchange agents or the National Bank.

²⁰ See Diamond and Dybvig "Bank Runs", Diamond and Rajan "Liquidity Risk". Diamond and Rajan also discuss the benefits of banking fragility for economic growth (Diamond and Rajan "Liquidity Risk" pp. 287-288).

²¹ Ögren "Free or Central Banking?"

Figure 7: Note Issuance, Demand Deposits and Liquid Reserves of the Enskilda banks, 1834 – 1900 (1,000's SEK).



Sources: Post & Inrikes Tidning 1835-1871, Sammandrag af Bankernas Uppgifter 1871-1900

The contemporary Swedish debate on banking focused on the question of bank notes. Critics argued that note issuance threatened both the prudence of the banks and, by extension, the fixed exchange rate, even though a run on deposits would be just as serious as one on notes.²² Still, as shown in figure 7, liquid reserves were not as closely linked to demand deposits as to notes in circulation.

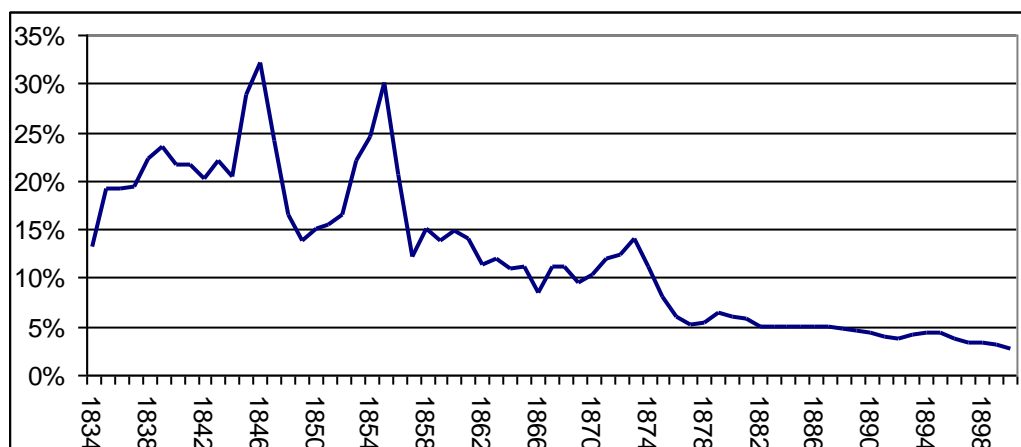
Assuming that the banks were efficient in their choice of liquid reserves, the reserves actually maintained must have been sufficient in the eyes of the public. Either the banks' customers did not consider demand deposits to be a source of bank vulnerability, or else the demand for liquid reserves declined over time while, co-incidentally, demand deposits also increased.

The former explanation seems unlikely in view of the fact that Stockholm Enskilda Bank experienced a run on deposits in December of 1878.²³ The latter explanation would imply a general, over all decrease in the demand for cash reserves. As shown in figure 8, the overall level of liquid reserves did indeed decline during the latter part of the period. The question thus becomes why liquid reserves were allowed to shrink to approximately three percent of total assets by the end of the period?

²² Ögren "Free or Central Banking?", "Lender"

²³ Söderlund *Skandinaviska banken*

Figure 8: Liquid Reserves of the Enskilda Banks as a Percentage of Total Assets, 1834 – 1900.



Sources: Post & Inrikes Tidning 1835-1871, Sammandrag af Bankernas Uppgifter 1871-1900

The dramatic decline in cash reserves can be explained by increasing confidence in the banking system and/or increasing liquidity of the financial market might have made it possible for the banks to substitute interest bearing (e.g. bonds, bills of exchange or shares), for non-interest bearing, financial assets.

The latter explanation would signal that a secondary market had arisen that lowered the risk, the transaction costs and the time needed when selling financial assets as bonds or bills of exchange. Consequently the banks could take advantage of holding such interest bearing assets since these could be sold without too much hassle when the banks needed to stand prepared with liquid reserves instead. If this was the case this follows the predictions of how banks contribute to the development of the financial sector by replacing holdings in cash (legal tender) with financial instruments.

Thus the fall in Enskilda bank reserves indicates that these banks experienced an increased ability to exchange interest bearing financial assets for liquid reserves. This might well have been the result of increased liquidity on the growing secondary financial market. Such a process would be consistent with a model of banks and financial markets in transitional economies created by Douglas W. Diamond. Diamond argues that the banks play an active role in creating liquid secondary markets. As capital markets become increasingly liquid, banks can reduce their holdings of fully mature assets. That is, liquid capital markets allow banks to reduce their holdings of liquid assets, thus, in turn, further increasing capital market liquidity.²⁴

²⁴ Diamond "Liquidity" pp. 949-950. Diamond suggests that the model is particularly suitable for a developing economy, which Sweden at the time most certainly was.

The hypothesis that Sweden benefited from increasingly liquid capital markets is further supported by the increasing ability of the National Debt Office to place bonds on the domestic market. In 1861, the Office issued bonds underwritten by *Stockholm Enskilda Bank* and the domestic banking firms of C.G. Cervin and Carnegie on the Swedish credit market. In order to generate domestic demand for these bonds, the bonds and their interest coupons were made acceptable for paying all kinds of taxes in Sweden. In addition they could be transferred to third parties at no cost. In effect, these bonds had been given legal tender status, clearly indicating that the secondary financial asset market suffered from a lack of liquidity. The coupon interest rate was a reasonable 4.5%, but in addition a commission (or capital discount) of 7% had to be paid to the underwriters of the loan. In view of the problems encountered in selling the bonds outside the major cities, a further 2% commission was added for such sales.

In 1865 another, supposedly temporary, loan to be administered by *Skandinaviska Kreditaktiebolaget* in Gothenburg bank was planned for the domestic credit market. Not only did it have to be denominated in Mark Hamburg Banko and Cologne Silver and payments had to be made in Hamburg and Copenhagen (not in Stockholm as demanded by the National Debt Office), the interest rate required was a generous 6%, with another 3.5% in total commissions.

Less than ten years later, in 1870 and 1872, two significantly larger bond loans were placed on the Swedish market. This time, no middle man was required and the interest rates were 5% and 4% respectively. In addition the commissions were lower. The second of these loans was designated to pay off the first, as well as two international bond loans dating from 1868 and 1869. Even if swings in the business cycle played some role, the domestic bond market seems to have become more liquid during these years.²⁵

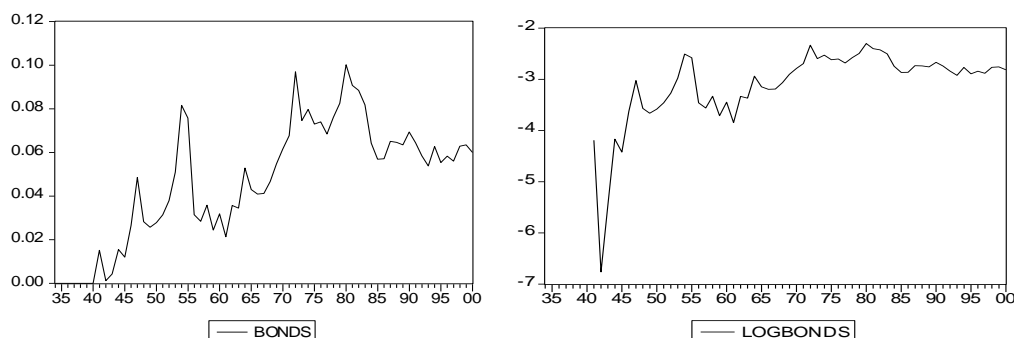
To test whether financial instruments (bonds) were substituted for cash reserves and as a result of increased overall liquidity I estimate a model determining the variables affecting Enskilda bank holdings of bonds relative to total assets. The two hypothesis are: 1) Increasing overall liquidity made bonds a better substitute for liquid assets, and

²⁵ Riksgäldskontoret Lånekontrakt Tryckta 1858 – 1872. Riksarkivet RGK No 9060 [hereafter RGKLLKT]. Administering the 1861 loan were the Banking firms Carnegie o Co., C.G. Cervin and Stockholm Enskilda Bank. Administering the 1865 loan was Skandinaviska Kreditaktiebolaget in Gothenburg. A Professor from the Royal Institute of Technology had to help the national Debt Office with calculating the actual cost of the loan. In the case of the loans 1870 and 1872 commission was probably paid to local tax governors administering the handling of these bonds (see also Ögren “Lender”).

2) If bonds are viewed as a substitute for liquid assets, then increased demand for credit ought to affect relative bond holdings negatively.

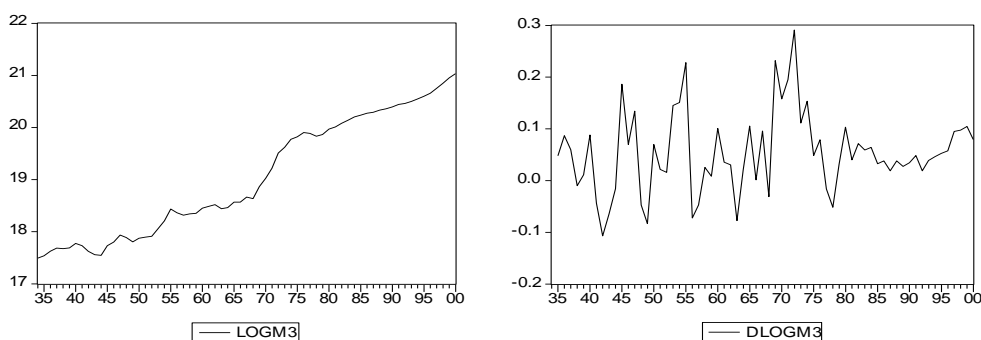
Since this model is intended to explain long term developments, the dependent variable, BONDS, is measured as the natural logarithm of bank holdings of bonds, exclusive of their security fund, in relation to total assets. As was the case with the previous model, the starting year is 1848.

Figure 9: Bond Holdings as Percent of Total Assets and in Natural Logarithm Form, 1834 – 1900



Independent variables explaining the share of bonds in total Enskilda bank holdings are: M3: The money supply in terms of M3 (circulating notes plus the public's deposits in commercial and savings banks) is used as a parameter to measure the growth of liquidity in Sweden.²⁶ The hypothesis is that growth in M3 ought to lead to increased Enskilda bank bond holdings. Since the natural logarithm of M3 is not stationary, it has to be implemented as first differences.

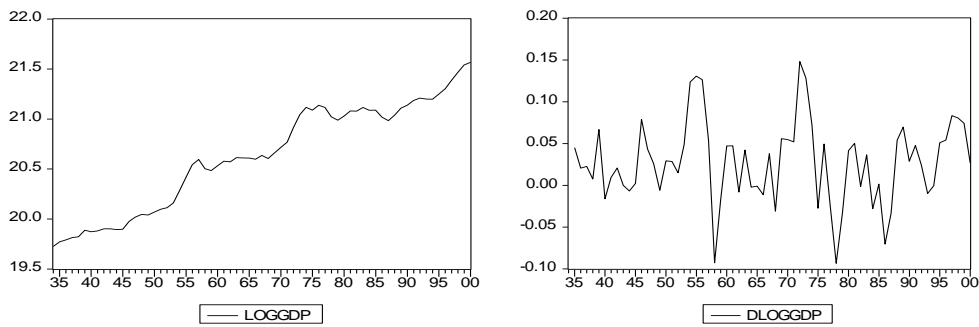
Figure 10: Money Supply M3 as a Natural Logarithm and Annual Changes Therein, 1834 – 1900



²⁶ Data is from POIT 1849-1871, Sammandrag 1871-1900, SCB *Historisk statistik* pp. 99, 102-103, Sveriges Riksbank "Statistiska tabeller" pp. 45-49.

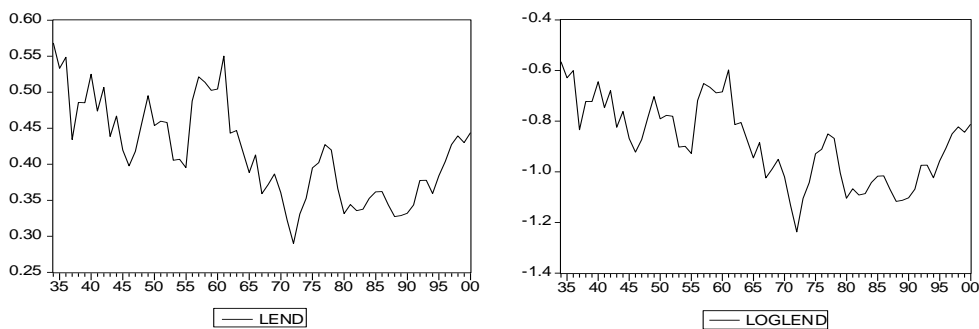
GDP: Nominal GDP is utilized as a proxy for the public’s demand for credit.²⁷ If bonds were considered to be a substitute for liquid reserves, then increased demand for credit (as measured by GDP growth) ought to be negatively related to bond holdings. As was the case with M3, the nominal GDP series has to be differenced to become stationary.

Figure 11: Nominal GDP as a Natural Logarithm and Annual Changes Therein, 1834 – 1900



LEND: If bonds were considered to be a substitute for liquid reserves, then Enskilda bank lending relative to total assets ought to be negatively related to bond holdings. According to the ADF-test, the lending series is actually more stationary in its original, than in its logarithmic, form. Thus the series LEND is defined simply as lending as a share of total assets, even though this series is only close to being stationary at the 5% significance level.

Figure 12: Enskilda Bank Lending as Percentage of Total Assets and as a Natural Logarithm, 1834 – 1900



Finally, Enskilda bank holdings of bonds lagged one year was included in the model. It was expected that bond holdings would be positively related to bond holdings lagged

²⁷ The series of GDP at current prices is from Krantz “Swedish Historical National Accounts” pp. 12-14.

one year, since the ability to substitute bonds for liquid reserves was increasing over time.

As was the case with the previous model, one question concerns the existence of a structural break point either in 1864 or in 1865. Dealing with Swedish monetization indicates that there was a structural break in the late 1860's which ought to have increased the ability to substitute bonds for liquid reserves.²⁸

Table 3: OLS-Regression Results of the Determinants of Enskilda Bank Bond Holdings

Dependent Variable: LOG(BONDS)					
Sample: 1848 1900					
Included observations: 53					
Variable	Coefficient	Std. Error		t-Statistic	Prob.
C	-2.07		0.43	-4.77	0.00
DLOG(M3)	1.43		0.41	3.51	0.00
DLOG(GDP)	-1.14		0.55	-2.09	0.04
LOG(LEND)	-0.82		0.25	-3.37	0.00
LOG(BONDS(-1))	0.57		0.09	6.67	0.00
R-squared	0.82	Adjusted R-squared			0.81

Sources: Krantz, O. (1997) pp. 12-14, Post & Inrikes Tidning 1849 – 1871, Sammandrag af Bankernas Uppgifter, 1871-1900, SCB (1960) pp. 99, 102-103, Sveriges Riksbank (1931) pp. 172-185

The results of estimating the model seem to be consistent both with the hypothesis that interest bearing bonds increasingly become a reliable substitute for liquid reserves and the hypothesis that this was a consequence of the increased liquidity of the secondary financial markets.

Increases in domestic liquidity, as measured by the growth of M3, resulted in larger bond holdings. Since the growth of economy wide liquidity facilitated the conversion of bonds into liquid assets, this result is in accord with the hypothesis. Since both the dependent and the independent variable are natural logarithms, it is also possible to evaluate the size of the coefficients. A one percent change in economy wide liquidity resulted in a 1.38 percentage point increase in the share of bonds in total bank assets.

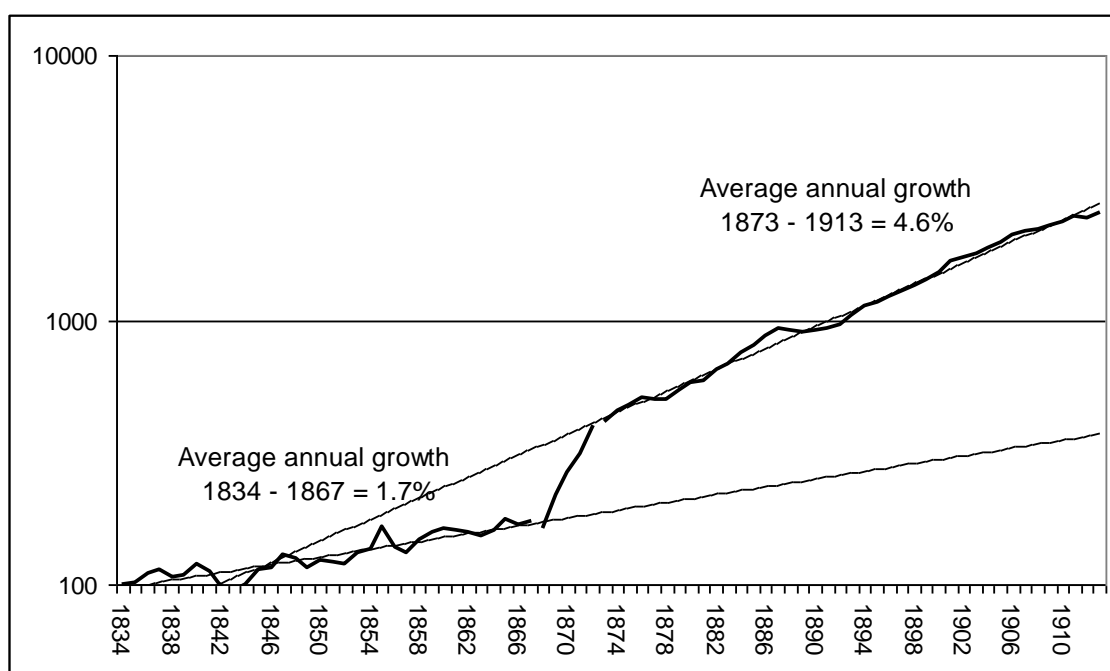
Increases in both lending and the demand for credit, the latter represented by annual changes in nominal GDP, resulted in decreased Enskilda bank bond holdings (although the GDP relationship was not significant at the 5% level). These results tend to support the hypothesis that bonds were held as substitutes for liquid reserves since both strictly cash reserves and bond holdings decreased when the demand for credit increased.

²⁸ See also Ögren *Empirical Studies*

The percentage of bonds in total bank assets was positively related to bonds held the previous year. This is likely to be the result of an increasing ability over time to substitute interest bearing bonds for liquid reserves, as the liquidity of secondary asset markets improved. A discontinuity in the ability to hold financial assets in place of cash reserves indicates that the secondary markets for such assets had become sufficiently liquid to assure the holder that they could be sold with little risk of substantial loss.

It is also evident that the Banking Act of 1864 that resulted in an increased number of Enskilda banks (from 12 in 1864 to 26 in 1867) was essential for the financial development. Monetization indeed shifted upwards during the years 1868 and 1872 and accelerated thereafter (see figure 13 below). The biggest part of this monetization was by far deposits in the Enskilda banks but also Enskilda bank notes expanded.

Figure 13: Broad Money Supply in Sweden, 1834 – 1913 (Per Capita and in Stable prices). Semi-logarithmic Scale with Growth rates for Sub periods. The Broad Money Supply is defined as Liquidity held by the Public plus their Deposits in Commercial and Savings Banks.



Sources: Ögren, A. (2003)

The shift in monetization that occurred in the late 1860s and early 1870s is indicating that a structural change in the ability hold bonds occurred during these years when the establishment of new banks accelerated in response to the Banking Act of 1864. This supports the hypothesis that the right to freely open new banks facilitated the development of the Swedish credit market. Thus the 1860's, thanks to the evolution of

the banking system, witnessed significant progress in the creation of the prerequisites needed for the development of an efficient over all capital market. The question is if the activity of the Enskilda banks also was related to economic growth?

Enskilda banks and Economic Growth

The Enskilda banks were crucial for the Swedish monetization. The symbiotic system with the National Bank issuing base money and the Enskilda banks providing liquidity (notes) based on these notes was of fundamental importance for replacing other, less efficient, means of payments such as private IOUs.²⁹

The idea that liquidity promotes growth is supported in theory. A well designed financial system leads to lower information and transaction costs and possibilities to better risk management.³⁰ The main instrument in order to avoid transaction costs is formal liquidity, i.e. means of payments directly possible to use for transactions as trusted by all parts. This is of especial importance in an illiquid emerging economy in the process of formalizing and integrating its domestic markets. The larger acknowledgement of the means of payments, the more it can be used in larger networks, including as became the case with the Enskilda bank notes, the entire Country (and some neighboring regions in Norway and Denmark).

Prior research has shown that the Swedish system consisting of the National Bank issuing base money and the Enskilda banks issuing notes based on National bank notes, granger-caused both general economic growth and growth in the increasingly important industrial sector for the period of the silver and the gold standard from 1834 until 1913.³¹

Cointegration analysis can be used for detecting relationships between unstationary variables (i.e. containing unit roots). The basic assumption in the cointegration analysis is that even though there are trends in the data series, there may be a stable relationship between the series. If there exists a linear combination of the two non stationary variables that is stationary the time series are cointegrated. This linear combination shows a long-run equilibrium relationship between the variables. This equilibrium is an

²⁹ Ögren "Free or Central Banking?" The Swedish system seems in many ways to be similar to that of the USA in its early years when the two Banks of the United States issued convertible base-money used by US state banks as reserves (see Officer "U.S. Specie Standard").

³⁰ Levine "Financial Development"

³¹ Ögren "Financial Revolution"

econometric equilibrium, i.e. means that the variables do not diverge randomly from each other over time.

As seen in figures 14 to 16 there might be a case of cointegration between the Enskilda bank variables such as notes issued by the Enskilda banks (EBNOTES), Enskilda bank lending (EBLEND), Enskilda bank assets (EBASSETS) and general growth in the economy (GDP) and/or growth in the industrial sector (INDUSTRY).

Figure 14: Per Capita Enskilda Bank Notes and GDP (to the left) and Per Capita Enskilda Bank Notes and INDUSTRY in stable prices, 1834 – 1900. Logarithmic values.

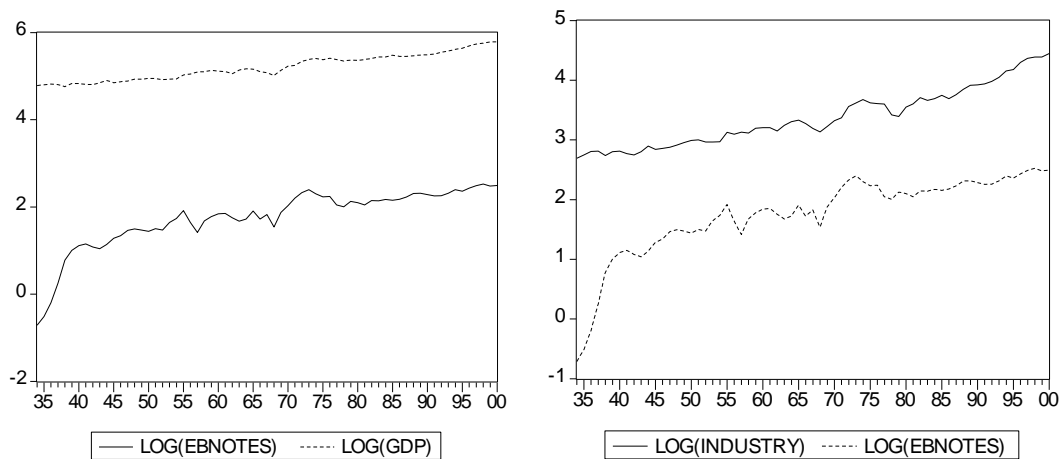


Figure 15: Per Capita Enskilda Bank Assets and GDP (to the left) and Per Capita Enskilda Bank Assets and INDUSTRY in stable prices, 1834 – 1900. Logarithmic values.

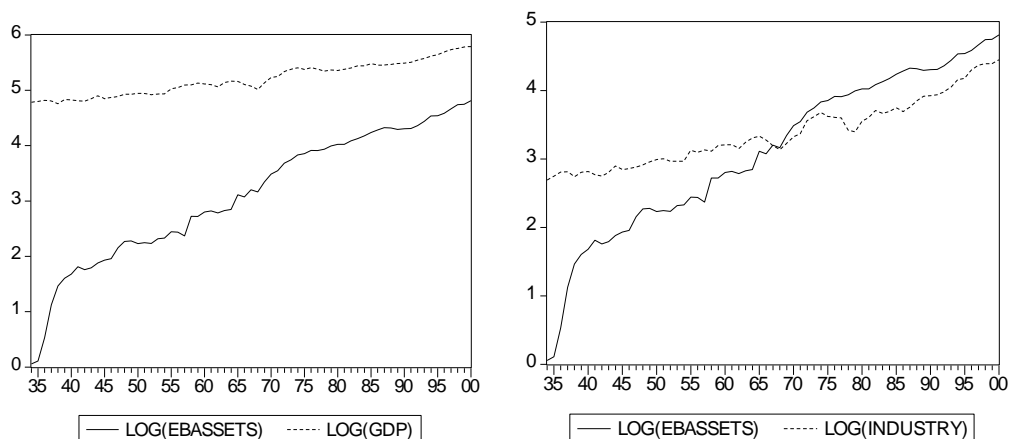
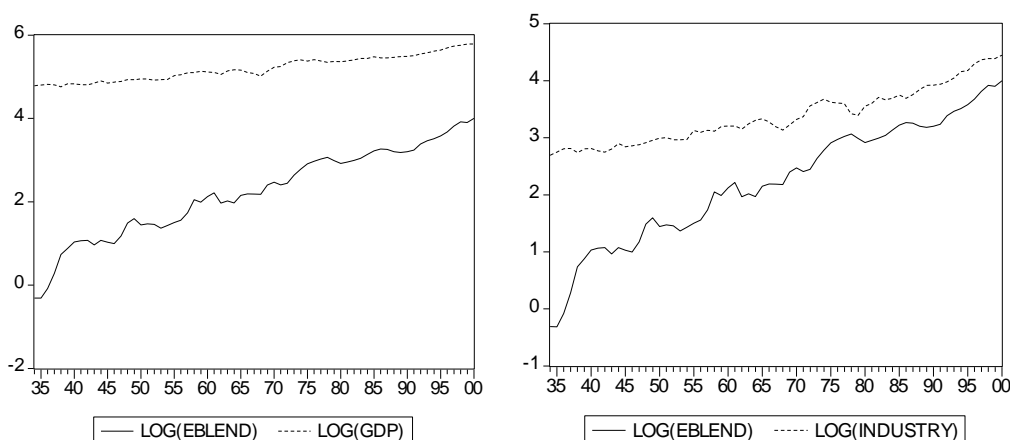


Figure 16: Per Capita Enskilda Bank Lending and GDP (to the left) and Per Capita Enskilda Bank Lending and INDUSTRY in stable prices, 1834 – 1900. Logarithmic values.



It may not be visible in the figures but pair wise cointegration tests shows the existence of cointegration vectors between the different measures of the Enskilda banks and economic growth for the period 1834 and 1900. Any particular causality in the internal relationship between the growth variables and the system of Enskilda banks is not detectable. But since the cointegration tests without exception showed a mutual relationship in long term growth and the measures of the Enskilda bank system it is quite clear that the system of Enskilda banks was of main importance for economic growth. Table 4 below summarizes these results.

Table 4: Result of Johansen's Cointegration pair wise test of linear deterministic trend in the series of EBNOTES, EBLEND and EBASSETS with growth in the industrial sector (INDUSTRY) and overall economic growth (GDP) in par capita and stable prices, 1834 – 1900 logarithmic values. The table shows number of cointegration vectors and their significance levels.

	Log(EBNOTES)	Log(EBLEND)	Log(EBASSETS)
Log(GDP)	1**	1**	1**
Log(INDUSTRY)	1**	1**	1**

* 5% and ** 1% significance level

To conclude, the statistical tests shows that growth in the lending of Enskilda banks as well as in the banking system was related to growth not only in GDP but also in the industrial sector. Most important; the amount of supplied Enskilda notes held by the public was related to the size of GDP and the industrial sector as well. In addition to this a prior study has shown that the amount of Riksbank plus Enskilda bank notes that

circulated positively influenced economic growth.³² Again this underlines the importance of creating means of payments with the qualities that makes them accepted for transactions outside small regional networks.

Conclusions

To paraphrase Mark Twain; the rumors concerning the end of the Enskilda banks in response to the introduction of limited liability banking during the 1860's are exaggerated. The Enskilda banks continued to dominate Swedish banking until the dawn of the twentieth century. Given the commercial banking system's contribution to financial development and economic growth, the Enskilda banks was a successful response on how to develop a banking system in a poor and illiquid economy as the nineteenth century Swedish. The aspect of the Enskilda banks used to brand them as backward, the issuance of notes, in fact was the source of their success.

The ability to issue notes gave the Enskilda banks a degree of flexibility that made it possible for them to operate in areas of capital scarcity. Another important part of the success of the Enskilda banks were their ability to adjust to the changing seasonal demand for means of payments; i.e. notes. The use of deposit financing developed not so much because of the repeal of the usury law in 1863, but because of the provision of sufficient means of payment. The circulation of money, usable for deposits, was largely a result of the note issuance activities of the Enskilda banks.

As deposits increasingly become a viable alternative means of financing banking activity, the Enskilda banks came largely to rely on them. By the late 1860's, note issuance had become secondary to deposits. Indeed, throughout the nineteenth century, the Enskilda banks held more deposits than did the limited liability banks. One of the advantages of the Enskilda banks versus their limited liability competitors was their greater ability to liquify fixed assets, even when they lacked sufficient deposits to operate their business. This advantage was maintained throughout the nineteenth century and made the Enskilda banks' mode of operation superior in most parts of Sweden.

The latter section in this chapter examined the interaction between the Enskilda banks and the emergence of liquid capital markets. The level of liquid reserves maintained by the Enskilda banks declined rapidly during the period 1834-1900. Three

³² Ögren "Financial Revolution"

explanatory hypotheses were discussed: 1) Increasing confidence in the banking system resulted in a decreased demand for liquid reserves, 2) Increasing demand for credit by the public resulted in a decreased demand for liquid reserves and 3) Increasing liquidity of capital markets allowed the Enskilda banks to substitute income generating assets, such as bonds and shares, for non-interest bearing cash reserves.

All three hypotheses seem to have some validity, even if the confidence effect is difficult to measure. Liquid reserves definitely decreased as demand for credit rose, and bond holdings were strongly negatively related to totally liquid reserves. As Enskilda bank bond holding increased in tandem with the economy's overall liquidity, growing capital markets made it possible to substitute interest bearing assets for liquid reserves. Thus, as the liquidity of capital markets increased as a result of banking activities, the banks needed less liquid reserves, thereby further increasing the liquidity of the markets.

The years 1864 and 1865 witnessed a leap upward in the bond holdings of the Enskilda banks, implying a breakthrough for Swedish capital markets. The conclusion is that the Banking Act of 1864, by removing virtually all legal barriers to the establishment of new banks, at the time was of greater importance for the development and integration of the Swedish credit market than was the introduction of limited liability banking.

There is no doubt that the Enskilda banks were related to economic growth both overall and in the up and coming industrial sector. Issuance of notes as well as lending and total assets were all cointegrated with GDP and the industrial sector. It is however not clear how this link was and/or how the causality was between these measures of the Enskilda banks and the measures of economic growth.

In all respects the importance of the Enskilda banks in the financial and economic development of Sweden in the nineteenth century should not be underestimated. These banks were a rational response to the difficulties of funding banking business in an illiquid economy. And they stayed as long as the right to issue notes lingered. As soon as this right was taken away, however, they chose to reorganize as limited liability banks. Thus, the right to issue notes was the key to why these banks were as successful in promoting financial and economic development as they were.

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