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## What determines the value of money? An empirical perspective on classical monetary theory from Sweden, 1789 – 1833

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### ABSTRACT

This paper looks at the parallel note issuance conducted by two monetary authorities in Sweden; the National Debt Office and the Riksbank from a monetary theory perspective. The main question explored is how money is endowed with value. These monetary authorities both issued notes unrelated to each other between the years 1789 and 1803. Although the study is insufficient at present to draw any major conclusions, it seems as neither the Chartalist or the Metallist approach in itself can explain the phenomenon. The distinction between commodity and fiat money is questioned, and the fundamental axioms in classical and neo-classical monetary theory is further challenged as unrelated to empirics.

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## **Introduction**

Although one of the most striking feature of every economy is its monetary system, academic views on money and monetary theory are surprisingly diverse. Many theoretical assumptions inherent in classical and thus neo-classical monetary theory are difficult to build from micro theory, as well as do not seem to correspond to historical empirics. Nevertheless, neo-classical monetary theory remains the main theory on money, from which several other important economic policy statements, for instance within monetary policy, are derived.

Monetary theory as such includes several features, but in this paper the question of how money is endowed with value is focused. This of course also requires discussions on the problems of defining such entities as money and means of payments. The discussion originates from the basic assumptions made in classical, and later still highly alive in neo-classical monetary theory. The view on the value of money in classical theory is then confronted with empirical examples, as well as alternative monetary theories.

Swedish economic and monetary history is well suited for studying monetary theory. Being for most part until the latter nineteenth century a poor country, specie coins circulated to a negligible and stable extent. Instead transactions were carried out with paper money, issued by both formal and informal organizations and private persons.

One specific event in Swedish economic history that serves as a good case is the parallel but unconnected issuance of notes from two autonomous monetary authorities; the National Debt Office and the State bank (i.e. the Riksbank). Both the National Debt Office and the Riksbank were owned and run by the parliament. But these authorities were not cooperating. On the contrary, the Riksbank refused to accept notes issued by the national Debt Office, despite these notes being accepted for tax payments.

This paper is organized as follows, first monetary theory is discussed particularly in relation to the question of the value of money. Second, this discussion is related to the empirical material concerning the National Debt Office and the Riksbank. Finally, the observations made are discussed.

## **Monetary Theory**

There is of course not only one coherent monetary theory, but several different. Moreover, what assumptions that can be drawn from monetary theory differs after what question that is pursued. In this paper the theoretical discussion emanates from classical

and neo-classical monetary theory as the most influential monetary theories, and then moves on to the so called endogenous approach to money.

### **The basis of classical and neo-classical monetary theory**

The basic idea of the barter economy, from which classical and neo classical monetary theory is derived, leads to two strong axioms. These axioms provides the basis for the monetary theory and all monetary models, including such models dealing with monetary policy and exchange rate issues.

The general idea is that the non-monetary economy uses barter, and barter has very high search and bargaining costs. In order to decrease these costs connected with the so called double coincidence of wants, money in the meaning of means of payment is introduced into the economy.

At first means of payments of intrinsic value are used, intrinsic value in the meaning having an alternative use as input good or consumption. Thus, a standard commodity is used as money. Later, commodities are being replaced with intrinsically useless paper money, of no value or utility for the holder whatsoever.

Thus, the original model of the barter economy leads to two axioms being the basis of classical and neo-classical monetary theory. The first of these axioms is that money as means of payments in the long run are unrelated to the real economy. Money serves as lubricant to facilitate exchanges in the real economy.<sup>1</sup> The second of these axioms consequently is that there is a clear distinction between so called commodity and so called fiat money. The former being recognizable by intrinsic value and the latter of no value and no use other than to facilitate exchange. The two axioms in conjunction leads to the proposition that money is exogenously provided into the economy, just to serve as lubricant. Commodity money in terms of specie money is provided by nature, and fiat money by a monetary authority.

Although the definition of money in modern neo-classical theory still is circular, i.e. money is what is being used as money, the axioms derived from Stanley Jevon's classical proposition of 'the double coincidence of wants' is never challenged in monetary economics. Modern neo-classical monetary theory still clings to these

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<sup>1</sup> Regarding the Monetarist view see for instance Meyer, L.H. (2001)

axioms.<sup>2</sup> Arguably, these assumptions to most extent decide the outcome of monetary models.

This despite the fact that it is by no means difficult for an economic historian, or anyone with empirical knowledge in money and banking, to empirically falsify the most basic assumptions and results in the strand of monetary theory. In fact also research built on these assumptions have a hard time not to conclude the facts that what serves as money and what provides the value of money to a large extent is decided by institutional and contextual parameters.

In the important article from 1989 “Money as a Medium of Exchange”, Kiyotaki and Wright defines commodity money and fiat money by negative mirroring. Thus, fiat money is defined as an intrinsically useless “good” with the specific property of being totally indifferent for the utility of the people in the economy. This “good” is introduced from nowhere. The overall utility increases if this particular “good” replaces commodities as medium of exchange. Since the commodities are assumed to be positively related to the utility when consumed, this outcome is intuitive from the assumptions. So is the outcome that only commodities will circulate as mediums of exchange if the first agents do not believe the fiat money is possible to transfer in the future, since the fiat money has no value. “..., a critical factor in determining if an object can serve as a medium of exchange is whether or not agents believe that it will.”<sup>3</sup>

Thus, I would argue that the conclusions are mainly contextual, further illustrated by the conclusion following: “We also demonstrate how genuine fiat currency may, or may not circulate in the economy, depending on extrinsic beliefs, or social customs, as well as preferences and technology.”<sup>4</sup> The definition of a medium of exchange used by Kiyotaki and Wright is based on Wicksell, and may easily include all kinds of financial assets.<sup>5</sup>

Another approach, but based on the traditional functions of money and the definition of fiat money as useless, i.e. not affecting utility of the agents, is arguing that money is

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<sup>2</sup> See Laidler, D. (1988), Kiyotaki, N. & Wright, R. (1989), (1992), Kocherlakota, N. R. (1998) and Shi, S. (1995).

<sup>3</sup> Kiyotaki, N. & Wright, R. (1989) p. 928

<sup>4</sup> Kiyotaki, N. & Wright, R. (1989) p. 928

<sup>5</sup> Kiyotaki, N. & Wright, R. (1992) p. 18. Note that these models assumes impossibility to hoard money, as the agents have to chose between accepting a medium of exchange or a commodity. Both can not be held at the same time. In the article “Money and Prices: A Model of Search and Bargaining” (1995) the author, Shi, uses the same set of assumptions as Kiyotaki and Wright, to develop the model for, among other things, exchange market intervention.

memory. Memory is defined as: “*knowledge on the part of an agent of the full histories with whom he has had direct or indirect contact in the past.*”<sup>6</sup> Arguably, this approach is the balance sheet approach, without acknowledging the idea that money is part of a debt. On the contrary, Kocherlakota argues that money does not allow society to transfer resources over time.

The idea that money is accepted because it keeps a track record is interesting but not convincing without a more complex view on money than that it is what circulates as means of exchange. Why would the agents in an economy bother to keep a track record of the past? Basically the question must be asked, what possibility there is for the holder to use the money in transactions in the future. One conclusion drawn by Kocherlakota, not further enhancing the importance of “memory”, is as a consequence that commitment of the issuer is essential.<sup>7</sup> Thus, it is not clear whether the commitment or the “memory” endow money with value that ensures its acceptability for further transactions.

The authors of these articles maintain the fundamental assumptions, and thus do not test the validity of the assumptions in existing monetary theory. Instead the authors seek to prove that the consistency of the theory holds. Where fiat money comes from is not discussed, the value of fiat money is derived from the possibility to decrease transaction costs (increasing the probability of a match), and there are no attempts to define what assets that will serve as money. Thus, the value of fiat money and its origin is still a mystery in mainstream economics.

### **Money is credit: The endogenous money approach**

The endogenous approach to money recognizes money as credit. Credit arises when purchasing power is transferred from the future to the present. If the promise to repay the debt is possible to transfer to a third part, for instance in the form of an IOU, money in the meaning mean of payments have been created.<sup>8</sup>

Money is not exogenously poured into the economy. Instead money is created endogenously in the capitalistic production process. Basic preconditions for the creation

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<sup>6</sup> Kocherlakota, N. R. (1998) p. 232

<sup>7</sup> Kocherlakota, N. R. (1998) p. 244

<sup>8</sup> “*In summary, money is a balance sheet item, or a unit of account, which finances a flow of spending. It is created as one transfers purchasing power from the future to the present, and can be held in an uncertain world as insurance to meet expected and unexpected payment commitments because it is the generally recognized form of purchasing power and the universally recognized means of retiring debts.*” Wray, L.R. (1990) p. 13

of money is the recognition of private property. Money, credit and private property in turn are essential for the capitalistic production, hence money is endogenously created and not neutral even in the long run.

As a consequence money is created to match demand. Banking and central banking reserve requirements does not limit the supply of money, but may force the economy to use other forms of means of payments than formal, i.e. notes and coins issued by the central bank.<sup>9</sup>

Thus, the quest is to know what characteristics that makes certain assets become and remain generally acceptable as means of payments, as well as explain how confidence, which is a prerequisite for an asset to be used as means of payment, is achieved.<sup>10</sup>

As in the case of neo-classical theory, the endogenous money approach also relates to the distinction between commodity and fiat money. However, commodity money is, according to the endogenous money approach, suitable for economies lacking private property.<sup>11</sup> A historical conclusion that I, as will be further developed below, would argue not only lacks empirical support but also is inconsistent with micro theory.

### **What endows money with value; Chartalist or Metallism?**

There are two main ways in which the value of money is explained: The Chartalist and the Metallist variant. Basically, the Metallistic variant is the one connected to classical and neo-classical theory, and the Metallist is more embraced by the endogenous approach to money.

It derives the value of money from the idea of commodity money consisting of intrinsic value. Hence, the coins content of gold or silver, or the specie reserves held by the issuer guarantees the value of the money. This focus on the content of the reserves in a fixed exchange rate regime leads to the interpretation of the gold standard as working totally at variance from an exchange rate system being fixed towards another currency.

The value of fiat money is more difficult to explain in Metallistic terms, but as seen above are these explanations often connected to the decreasing of transaction costs such as search and bargaining costs. In order to do so, monetary authorities are to keep a

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<sup>9</sup> See Bell, S. (2001) and Wray, L.R. (1990). This is exactly what happened in the Argentinian crisis recently, when the banking system was forced to freeze public assets in order to protect the fixed exchange rate towards the US \$.

<sup>10</sup> Chick, V. (1992) p. 146

<sup>11</sup> See Wray, L.R. (1990) Chapter 2.

fairly stable supply of money and not disturb domestic prices. This in accordance with the “modern” quantity theory developed by Friedman and Schwartz. Hence, money is neutral.

The Chartalist explanation focuses on the State as the issuer of money. It is the stamp on the coin or the bank note that ensures the value of money. This stamp is the commitment of the ruler and is a debt instrument, possible to use for tax payments. Given a healthy economy of the State, a good tax system, there will be no problem to engage in transactions using the currency in the future. In this theory, the value of money is not set by its content in metal or reserves.<sup>12</sup>

### **Alternative monetary propositions**

The endogenous approach to money, and the Chartalist explanation acknowledges historical derivation of the function and value of money. Still, both the neo-classical theory and the endogenous approach have been built for already formally monetized economies.

In a transitional economy, such as nineteenth century Sweden, a large part of the money stock was in the form of informal money, issued by private persons. The contemporary official and scholarly approach to this phenomenon, was that classical monetary theory was right but practical circumstances forced the economy to rely on informal and inferior paper money and credit.<sup>13</sup>

Thus, the credit system giving way to the creation of means of payments was and is a fact without a strong state. Why should not the market and a strong issuer as another form of organization be able to fulfill this task? The question is what the public relies on as means of payments. Furthermore, as is the case for international currencies, that some are viewed as being of higher quality, i.e. are more demanded, than other this is also the case for informal money.

Issuance of means of payments were, however, in accordance with the balance sheet idea, that money is liabilities for one and assets for another. Thus, the exogenous view that money is issued outside the production process has never had, and still has no relevance. Monetarist views do not discuss how money is put into circulation by the issuer. Even free banking theory views the issuance of notes from commercial banks as

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<sup>12</sup> See Bell, S.A. (2001), Goodhart, C.A.E. (2003)

<sup>13</sup> See for instance Agardh, J.M. (1865), Nordström, J.J. (1853), Wennberg, J.O. (1829) and Ögren, A. (2003) Chapter 2

exogenous issuance aimed to compete in a market for private bank notes. Thus the note issuance is without relation to the lending or any other business of the banks. The relevance of the balance sheet approach, however, is difficult to deny after reading the balance sheets of banks and central banks.

The possibility to hoard money, not existing in neo-classical monetary theory decreases uncertainty about the future and thus is essential. This is one reason why payments in debts are easily acceptable. These arguments are in accordance with the endogenous approach to money.

But, the distinction between fiat and commodity money, existing but with different implications in both neo-classical and endogenous approach to money, arguably can be dismissed. Either an item is accepted as payment in a transaction to be put to use in production or consumption, or it is accepted as a means of payment with the intention to transact in the future. The former is to buy and sell goods and services for input in production or to use for consumption in accordance with the ideas of the so called “real economy”. The latter is to accept an asset that is believed to maintain its value and can be used for transactions in the future.

### **Competing monetary authorities – the National Debt Office and the Riksbank, 1789-1833**

The Swedish National Bank, the Riksbank was formed in 1668 and was run and administered solely by the Parliament. The Riksbank was responsible for keeping up the value of the currency, preferable by maintaining the specie standard. During the eighteenth century, the silver standard had been abandoned for various reasons from time to time.

By 1789, notes issued by the Riksbank again were redeemable into a fixed amount of specie. But, this had only been the case since 1777, when a readoption of the silver standard took place. The experiences of this readoption was that the deflationary effects had been severely costly for the Swedish economy.

The National Debt Office (NDO) was formed in 1789. It originated from the Parliament’s Office (*Rikens Ständers Kontor*) founded in 1719. This authority had the task of repaying the substantial debts from the wars run by the former king Karl XII.

Also when the National Debt Office started in 1789, the debt of the Swedish State to foreign lenders was substantial.<sup>14</sup>

In 1788 the government needed funds to finance the war on Russia. But as king Gustav III requested such funding from the Riksbank the bank denied this. Instead the Riksbank argued that the newly established silver standard was to be protected. The preferences of the government, i.e. the king, for this war was clear. The refusal of the Riksbank was questioned and a loan was taken against the will of the parliament.<sup>15</sup> This to further consolidate the government's independence of the parliamentary control.

As a compromise with the parliament the National Debt Office was given the task of raising further capital. Unlike the Riksbank, the board of this Office was influenced by the government, as the king's representative was appointed chairman. The National Debt Office was given the right to issue interest bearing promissory notes. According to the parliamentary regulation, the Office could issue notes to an amount of maximum 600 000 Riksdaler Specie (the Riksbank circulated approximately 5.5 million Riksdaler Specie in 1789). Within one month this amount was exceeded.<sup>16</sup>

In 1791 the promissory notes issued by the National Debt Office were no longer interest bearing. And to pay off earlier loans the Office maintained its note issuance, which continued until an agreement was settled with the Riksbank in 1803. It was then decided that the Riksbank should take over the responsibility for the notes in circulation that had been issued by the National Debt Office. In 1803 National Debt Office notes at a nominal value of no less than 19 million Riksdaler Specie was in circulation.<sup>17</sup>

### **Monetary arrangements**

Throughout the period, the Riksbank maintained the specie standard. The first credit notes issued by the National Debt Office were interest bearing. Since the Office issued notes to such an amount and these were accepted as means of payments by the public, the interest rate bearing feature of these notes was dropped in 1791. Officially, until the settlement between the Riksbank and the National Debt Office in 1803, the notes issued by the two monetary authorities were valued at par.

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<sup>14</sup> Ahlström, G. (1989) pp. 93-94, Carlsson (1989) p. 35

<sup>15</sup> According to Heckscher, king Gustav III stated the following regarding the refusal of the Riksbank to lend money: "*Since it only concerns money, I believe that nothing more is needed than the inconvenience of manufacturing them*", and "*I imagine myself, that the Swedish paper-mills have not burnt down*". Heckscher, E.F. (1949), pp. 235, 246. Author's translation.

<sup>16</sup> Heckscher, E.F. (1949) pp. 236, 245, Sveriges Riksbank (1931) p. 44

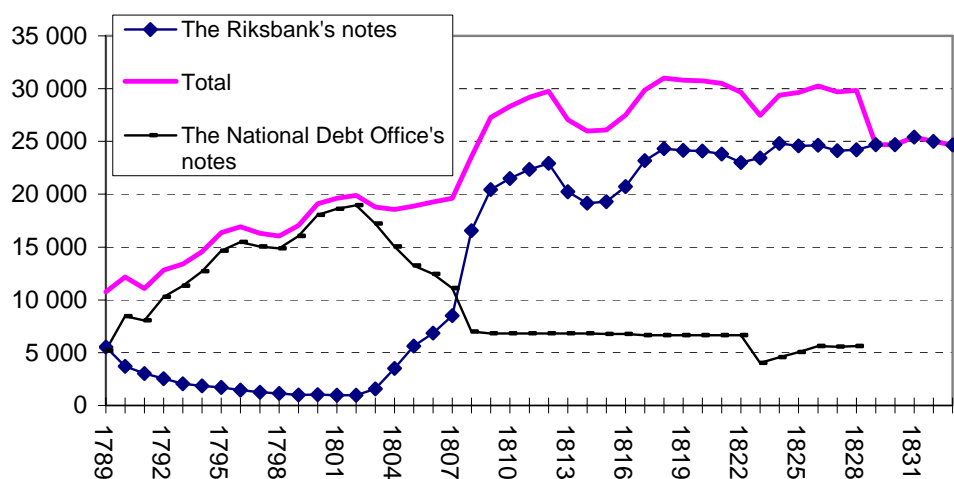
Riksbank notes were officially legal tender. National Debt Office notes were in practice legal tender being accepted for all payments, including taxes, except for payments and deposits in the Riksbank. The Riksbank consistently refused to accept any connection to the notes issued by the Office, referring to its responsibility for the fixed exchange rate. A responsibility not limiting the issuing capacities of the National Debt Office.<sup>18</sup> The National Debt Office notes were issued in smaller denominations than Riksbank notes. Something that has been forwarded as an explanation for the popularity of the National Debt Office's notes among the public.<sup>19</sup>

### Monetary results

For a period of more than thirty years, Sweden would experience two types of currencies, diverging in value and formally not exchangeable. The working of these two currencies, both issued by authorities, makes an interesting empirical perspective to the question of how money is created and endowed with value.

As seen in figure 1 below, the massive issuance of notes conducted by the National Debt Office relative to the Riksbank, made the main part of the money supply consist of National Debt Office notes. It seems as Riksbank notes obeyed the monetary adverse selection mechanism labeled Gresham's law, although this law originally concerns only metallic coins.

Figure 1: Note-circulation 1789-1833. 1000's Riksdaler Specie.



Source: Ahlström (1974) p. 24, Sveriges Riksbank (1931) pp. 13-21

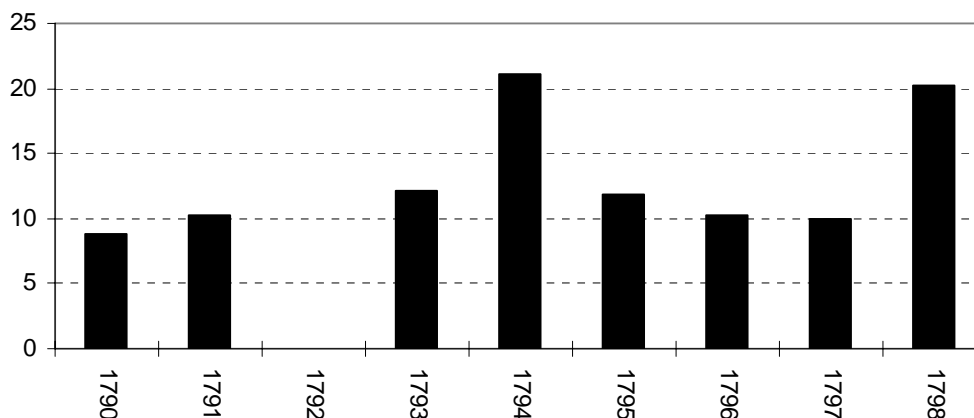
<sup>17</sup> Hallendorf, G. (1931) pp. 209, 221-235, 290, Heckscher, E.F. (1949) p. 254

<sup>18</sup> See Heckscher, E.F. (1949)

<sup>19</sup> See Fregert, K. & Jonung, L. (1996)

Whatever the reason was for the practical diminishing of Riksbank notes in circulation, this development resulted in several important changes in the monetary situation in Sweden. Most obvious was the almost immediate divergence in value in the market between Riksbank and National Debt Office notes. Figure 2 below shows the ratio between Riksbank and National Debt Office Notes.

*Figure 2: Ratio between the Riksdaler Banco and the Riksdaler Riksgälds 1790-1798. In percent.*



Source: Ahlström (1974) p. 29

Even though the Riksbank and National Debt Office notes were exchangeable at par officially, this was not the case in the market. When the Riksbank took over responsibility for the National Debt Office notes in circulation in 1803, the exchange rate was fixed at 1:1.5 in favor of the Riksbank.

As the value diverged, two “new” currencies were invented. The former Riksdaler Specie was divided into Riksdaler Banco (issued by the Riksbank) and the Riksdaler Riksgälds (issued by the National Debt Office). There were in practice two State issued currencies circulating simultaneously. As the latter circulated to a higher extent, prices quickly became quoted in the currency of the National Debt Office.<sup>20</sup>

The division between these currencies was visible until the monetary reform of 1855, when the *Riksdaler Riksmünt* was introduced. This currency was the same as the popularly used unit of account: the *Riksdaler Riksgälds*. Notes issued by the Riksbank,

<sup>20</sup> See Heckscher, E.F. (1949), Fregert, K. & Jonung, L. (1996) p. 458.

as well as the private banks were denominated in both currencies, but the denomination was regularly “even” in *Riksdaler Riksgälds*.<sup>21</sup>

The situation with two independent national currencies was not accepted and as a consequence a restored monetary unity was on top of the political agenda at least from 1796. However, voices from groups whose income was not dependent on taxes or rents promoted the idea of maintaining the paper standard. In 1800 a detailed plan was agreed upon in the parliament. But external forces delayed the Riksbank’s possibility to take over the liabilities of the National Debt Office, and thus these grew from 15 million to 19 million Riksdaler Banco (the old currency).<sup>22</sup>

### **Concluding discussion – Implications for monetary theory**

The intention with this paper was to focus on monetary theory and in particular how the theory explains the possibility to transact fiat money; i.e. how money is endowed with value. After discussing monetary theory, the case of two monetary authorities simultaneously but unrelated, issuing notes in Sweden was studied in relation to this discussion. Although a lot of research remains to be conducted for this paper, a few preliminary observations on monetary theory from the case above are worth to bring forward.

First, the new currency within short became the unit of account as a response to the higher supply of this currency and the changing relative value of the two currencies in the market. Second, Gresham’s law, the adverse selection process, seemed to be at hand even though it was a question of paper money and not coins. As the relative value changed in favor of the Riksbank notes, the public would hold on to these notes and not circulate them.

The question how the notes issued by the Riksbank and the National Debt Office respectively was endowed with value, can not simply be explained with either the Chartalist or the Metallist approach. According to the Metallist approach, the notes issued by the National Debt Office simply should not have been accepted as means of payments. But, according to the Chartalist approach, the divergence in value between the two currencies should not have taken place.

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<sup>21</sup> See Ögren, A. (2003) Chapter 1

<sup>22</sup> Hallendorf, G. (1931), Heckscher, E.F. (1949) p. 254

Consequently, there are reasons to deepen the study of this episode in the monetary history of Sweden. Suggestions for future research includes the questions of the reserves held by respectively issuer, regulations behind the issuance, what kind of notes that were issued (interest bearing, possible to use for tax payments, and so forth).

Another important research question is how the money was put into circulation, on what conditions and who were the customers? Finally, the question is how third part viewed the currencies? Why were both currencies accepted, when did divergence in value begin, and what initiated changes in the internal exchange rate?

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