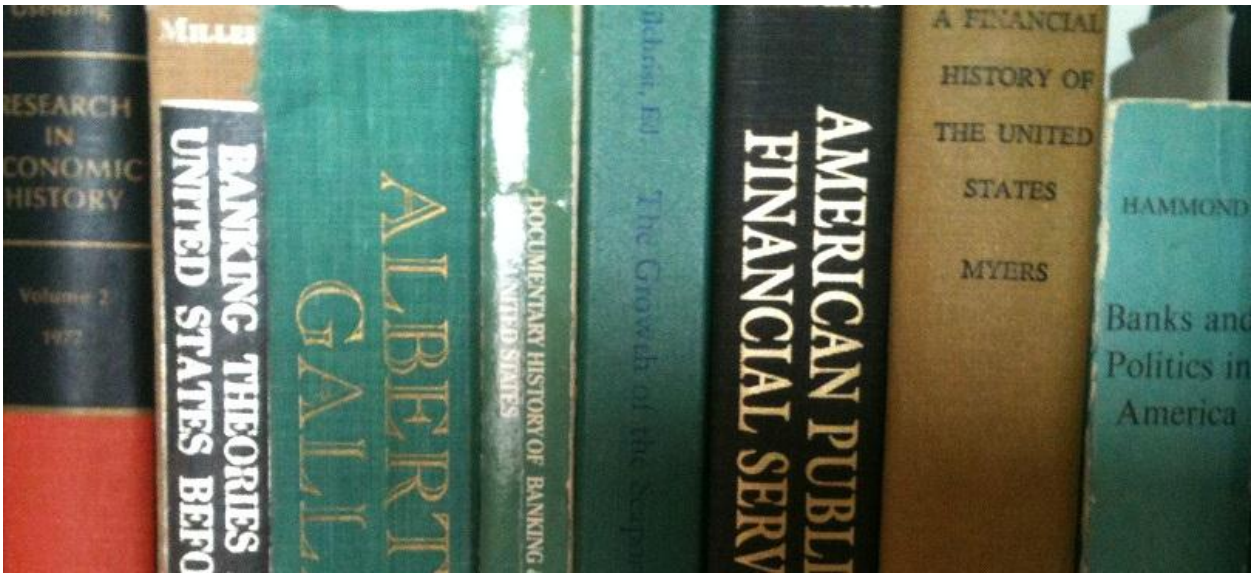
The Effects of Monetary Policies in and around the Inter-Bank Period.



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CONTENTS

INTRODUCTION

The Inter-Bank Period between the first and second bank of the United States could easily be seen as a mistake. It only lasted five years and the renewal of the central bank's charter was opposed by the same James Madison administration that later supported a second charter. Counting this as a simple error of judgment would be a serious discount to the genuine opposition to the Bank of the United States. From the beginning to the end of the Bank of the United States, there was opposition on constitutional and competitive grounds. This time period came as the result of that opposition, and longstanding misgivings about the necessity and propriety of a central bank.

I will analyze the Inter-Bank Period to examine the effects of what transpired in the absence of a central bank. I will observe the times in terms of political history, public finance, and monetary economics. Many aspects of banking, central banking and even public finance were different than the institutions of today. Understanding these differences is critical to understanding the times. I will observe price indexes to determine the effects of the early central banks, the transitions to and from the Inter-Bank Period, the money supply, interest rates, and if there were any regional price disparities.

The topic presents an opportunity to compare the monetary policies of early banking to those of today using econometrics. Generations of rigorous academic research should prove its worth in the quality of monetary policy in the terms that it these policies are judged: price stability, maximum employment, and moderate interest rates[1]. Because there are not employment figures from this period, the comparison will be made in terms of price stability and moderate interest rates. The numbers will be the arbiters.

[1] Board of Governors of the Federal Reserve System

SECTION ONE: HISTORICAL HAPPENINGS

A: The Constitution of Banking

The Constitution was argued and written throughout the summer of 1887. It was eventually ratified in 1788 when nine states adopted it. The Constitution outlines the roles, responsibilities, and limitations of the Federal government of the United States (U.S.). Congress is given many enumerated powers including, "to coin money, regulate the value thereof."[2] In 1792, Congress passed an act to establish a mint and its organization. Section eight defines various denominations of dollars and cents. The unit Dollar is defined as "to be of the value of a Spanish milled dollar as the same is now current."[3] One act in the first session was the incorporation of the Bank of the United States (B.U.S.).

The main problem with the previous Articles of Confederation was one of public finance.[4] The articles gave few powers to the federal government. The states agreed to pay Revolutionary War debts in proportion to the value of the state's land,[5] but the federal government had no authority to collect revenue.[6] An early example of monetary policies being unable to compensate for political problems is the "Continentals." Congress of the Confederation could not tax individuals directly, but it could print notes, which were known as "Continentals." It printed them without specie to back them up and until they had 1/100th their original value when they were finally redeemed by the United States government in the early 1790's.[7]

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[2] U.S. Const. Art. I, § 8
[3] An Act Establishing a Mint, and Regulating the Coins of the United States
[4] Maier, 11
[5] Myers, 49
[6] Schouler, 25
[7] Perkins, 98

There were disagreements over the establishment of a national bank. The Washington cabinet included Alexander Hamilton in the Department of the Treasury (Treasury) and Thomas Jefferson in the Department of Foreign Affairs (now Department of State) and they had opposing views on the matter. Hamilton describes a National Bank as a "usual engine in the administration of national finances and an ordinary and most effectual instrument of loan."[8] His "Second Report on the Further Provision Necessary for Establishing Public Credit" speaks generally on the virtues of fractional reserve banking, paper money, and the utility of a national bank:

> "It is a well established fact, that Banks in good credit can circulate a far greater sum than the actual quantum of their Capital in gold and silver. The extent of the possible excess seems indeterminate; though it has been conjecturally stated at the proportions of two and three to one. This faculty is produced in various ways. First a great proportion of the notes, which are issued and pass current as Cash are indefinitely suspended in circulation, from the confidence, which each holder has, that he can at any moment turn them into gold and silver."[9]

Jefferson wrote that the bill was unconstitutional because it was outside of Congress' powers. He wrote that it was against laws of mortmain, alienage, forfeiture, distribution, perhaps most notably monopoly.[10] Ultimately the law passed and the B.U.S. retained a monopoly on the deposits of U.S. funds, and their notes enjoyed a monopoly (for bank notes) in reception to the U.S. government.[11]

B: The Theories and Nature of Banks

In terms of what we would call economic theory today, John Law's nationalistic, mercantilist *Money & Trade Considered*[12] had only recently been rebutted by the Physiocrats and Adam Smith. However, early tariff legislation shows that Law's concepts had not fallen

[8] Schouler, 176
[9] Hamilton, 259
[10] Jefferson, 275
[11] Wood, 123
[12] Law, 12

from the public policy debate.[13] *An Inquiry into the Nature and Causes of the Wealth of Nations* considered the authoritative book in its description of production and trade of all types.[14] In it Smith wrote on money:

> "The quantity of money, on the contrary, must in every country naturally increase as the value of the annual produce increases. The value of the consumable goods annually circulated within the society being greater, will require a greater quantity of money to circulate them. A part of the increased produce therefore will naturally be employed in purchasing, wherever it is to be had, the additional quantity of gold and silver necessary for circulating the rest. The increase of those metals will in this case be the effect, not the cause of the public prosperity."[15]

This was an early version of the Quantity Theory of monetary economics.

France was considering paying off two billion livres of debt by issuing paper money in 1790. Founding Physiocrat Pierre Samuel du Pont spoke against it, "The assignats which you have given up to the present are very good and very sound, the same as those which you might issue in the future, the same as all other assignments on your lands or on your revenues; but these assignats have not been a payment at all; they are obligations, they are anticipations (of payment) which you have made, based on your lands, like those which you formerly made based on your revenues."[16] They went ahead with the printing of the paper money, and less than a decade later the du Pont family left for the U.S. to form a business dynasty after enduring the reign of terror.

In 1797, the Bank of England began issuing paper currency over and above their gold standard. Henry Thornton published a book in 1802 based on this theory and experience, *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain*. He both defended the actions of paper issuance, and warned that notes would depreciate if the number issued was not

[13] Schouler, 96
[14] Jefferson, 449
[15] Smith, 434
[16] Du Pont, 18

limited.[17] David Ricardo blasted Thornton for his actions, "The danger, however, is that this power would be more likely to be abused, if in the hands of Government, than if in the hands of a banking company. A company would, it is said, be more under the control of law, and although it might be their interest to extend their issues beyond the bounds of discretion, they would be limited and checked by the power which individuals would have of calling for bullion or specie."[18] The Bank of England's attempt to increase the supply of money to counteract economic contractions is a forerunner of Keynesian policies which have largely dominated monetary economics since the 1930's.

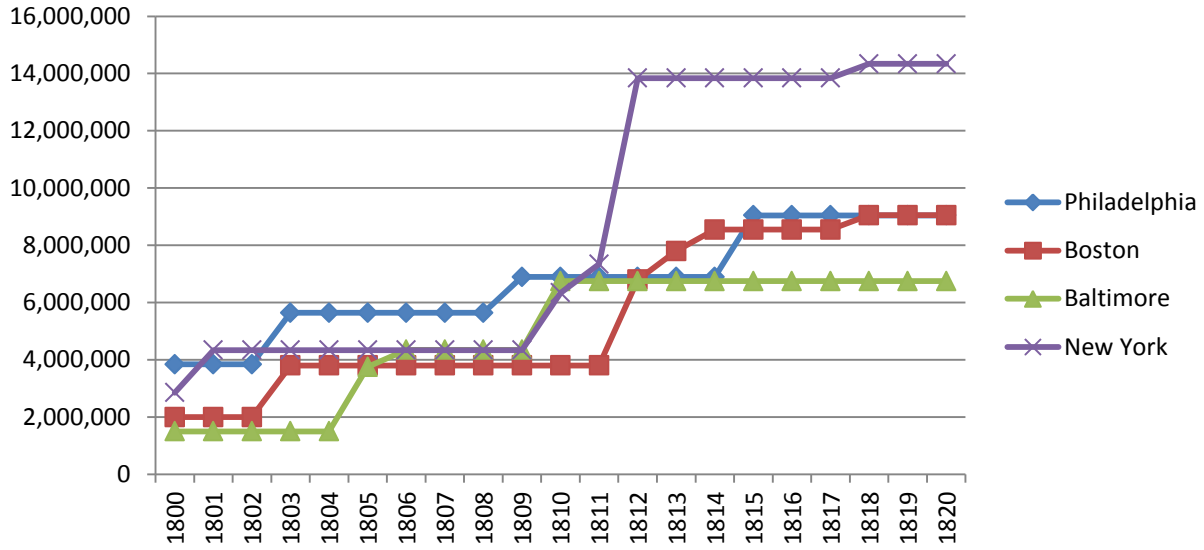
Banking theory and practice was still developing during this period, but most banks were defined as deposit, discount, or issue. In the early U.S., most banks did all three of these functions.[19] Banks would hold deposits, facilitate loans, offer discounts for late repayments, and issue notes on the specie in the bank. The notes were redeemable for specie by law. Loans were more likely considered to be between individuals, with banks only acting as an intermediary.[20] The issuance of bank notes was the more common way that banks leveraged assets. The practice of issuing notes based on specie was not accepted universally.[21]

All aspects of banking were argued at this time, but their existence, while debated by the likes of Thomas Jefferson,[22] was accepted in the U.S. after the Constitution. Alexander Hamilton understood the money multiplier effect; that banks could increase the currency within the economy both by lending and by issuing notes beyond the specie in their vaults.[23] University

[17] Rist, 136
[18] Ricardo, 362
[19] Miller, 17
[20] Miller, 79
[21] Tucker, 160
[22] Miller, 20
[23] Hamilton, *Second Report*, 259

of Virginia Professor George Tucker also wrote about banks of circulation, "After banks have been established in a community sufficiently long for the public to have acquired entire confidence in their solidity, and to have become familiar with their paper, this, by its superior convenience to the precious metals, is found to constitute a principal part of the circulation." The foundation of all banking, throughout history, is public confidence.

Chart #1: Chartered Banks of Selected Cities and their Capital



[24] **(Note: X axis is in years, Y axis is in dollars as a measure of selected bank capital)**

Banks were chartered by states, and their approval was a political process. States would often define the capital of the bank, set reserve ratios, and/or require public reports to be furnished to the state.[25] Banks that sought to increase their capital had to petition the legislature to raise it.[26] These laws varied from state to state as did the state's propensity to issue new charters. Many charters did not even include any requirement for the redemption of notes for

[24] Table #3, Kroos, 111
[25] Hammond, 162
[26] Wainwright, 26

specie.[27] Massachusetts, Pennsylvania, Maryland, and others enforced penalties on banks that would not redeem their own notes including fines and forfeiture of the banking charter. Conversely they tried to keep specie within the banks. One Maryland law attempted, "to relieve people of this state, as far as practicable, from the evil of arising from the demands made on the banks of this state for gold and silver by brokers."[28] These competing interests between enforcing a note holder's right of redemption and the banks and local economies need for specie to base loans and notes off were fundamental issues for state and national legislators. Overall the system of private banks issuing notes based on specie worked very well.[29]

There is evidence that banking during this era was considered a "speculative enterprise"[30] There was a problem of the so-called wildcat banks. These banks would issue notes, but their location would be in a remote area that would be somewhat inaccessible to note holders wishing to redeem for specie.[31] Outright fraud was uncommon, but there is the notable case of Andrew Dexter and the Glocester Bank. Dexter may be the inventor of the leveraged buy-out. Dexter acquired the shares of the Directors of the Glocester Bank by arranging payment to the Directors from the capital of the bank by taking out loans from the bank. Dexter then went on to demand the cashier write bank notes day and night in privacy. When the cashier complained that he could not write out more than 50,000 per week, Dexter requested 20,000 per day. The notes would be sent to Dexter's office in Boston where he would trade them. By the time the scheme collapsed the bank had issued notes of $800,000 on capitol of $45.[32] This was far outside the

[27] Wright, 374
[28] Hammond, 180
[29] Rothbard, 57
[30] Nussbaum, 64
[31] Sumner, 61
[32] Hammond, 173

norm. Most banks, especially large urban ones, functioned as credit unions for merchant owners.[33]

Before Dexter began running a hand-crafted printing press, he was in the business of accepting bank notes at a discount. It was a common and useful practice for institutions of all types to accept bank notes from far away or ill repute at a discount and either resell them for a profit or redeem them for specie. This was an informal check on the inflation of private bank notes and a way of pricing risk into the notes.[34] It was also a perfect business for Dexter to foist notes upon unsuspecting traders, thereby robbing the value of his depositors.

Public opinion on the matter of banking can be difficult to ascertain in specific due to the times. In general, opinions varied from that all banks were dangerous, that banking should solely be a function of the state, to banking should be centralized but in a public/private cooperative, and/or that banks should be private and chartered by the states.[35] Philadelphia bookseller and pamphlet publisher Mathew Carey wrote widely on a variety of subjects, including the local economy and banks. He complained that bank capital and discounts had not risen proportionately to population in Philadelphia. Near the other side of the argument, then retired President John Adams wrote to Dutch Patriot François Adriaan van der Kemp in 1809, "every dollar of a bank bill that is issued beyond the quantity of gold and silver in the vaults represents nothing and is therefore a cheat upon somebody."[36] Deposits were not insured in any way which made depositors non-share-holding investors. If a bank went bankrupt, the depositor risked his principle, and his principle added to the capital of the bank.

[33] Cleveland and Huertas, 8
[34] Hammond, 172
[35] Flanagan, 2
[36] Adams, 610

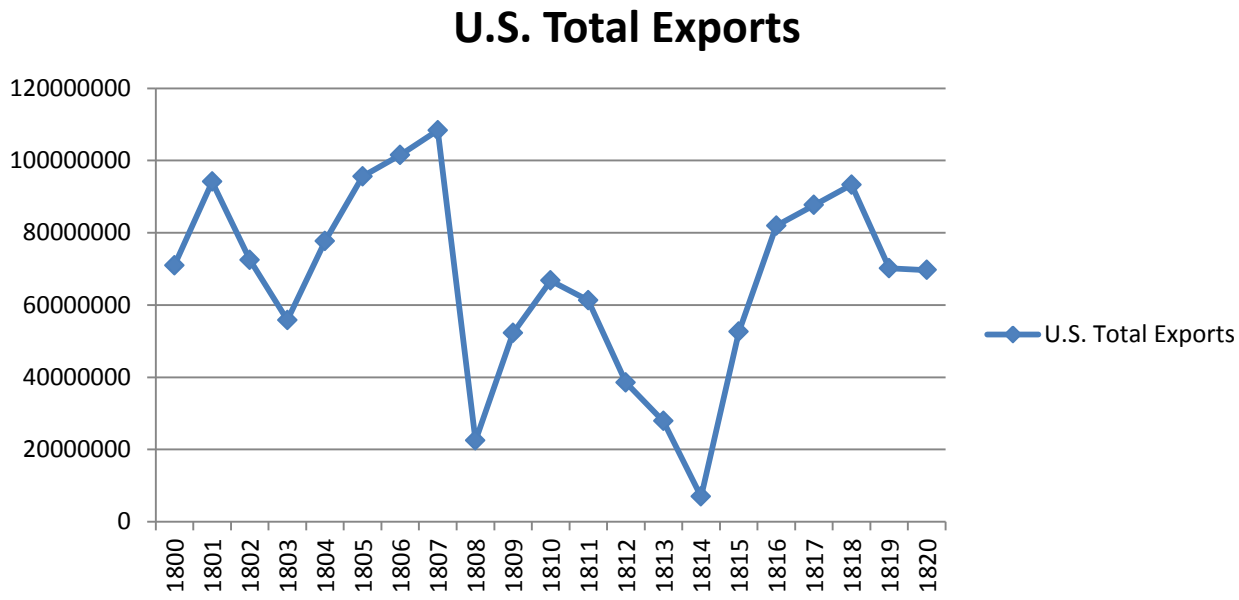
There was not a central bank issuing a uniform currency and setting policy for their quantity of circulation. Still, the philosophy and policies of bankers did not vary much from state to state or even bank to bank.[37] The national macroeconomic policy was a de-facto policy of contract law. Bank notes were transferrable and ultimately redeemable for gold and silver specie which was regulated by the Treasury. Some states regulated the reserve ratios, but these varied between states, if there even was policy. Many states required banks to submit basic numbers relating to capital and notes, but there seemed to be no other apparatus to restrain banks from over supplying notes. Also, banks notes did not simply stay in one state, so if there were any state banking policies towards note issuance, they would have been somewhat ineffective.

C: The Inter-Bank Period

In 1811, the charter of the B.U.S. was set to expire. There was support for it to be renewed and it passed the House of Representatives and had a tie in the Senate. Vice President George Clinton, in his role as President of the Senate, cast the deciding vote against it and the charter expired. President James Madison did not have a public position on the bank, but privately thought it was unconstitutional.[38]

[37] Kroos, *Financial Institutions*, 115
[38] Perkins, 257

Chart #2: U.S. Total Exports, 1800-1820



[39] (Note: X axis is defined in years. Y axis is defined as exports in dollars)

The main source of economic activity in the early United States was agriculture[40] and national exports were meeting with difficulties in the early 1800's (Chart 2). There was a strong friction of trade on the Atlantic Ocean as the United Kingdom and France fought the Napoleonic wars. There was an issue of British impressments of U.S. merchant sailors. There were 1,600 "bona-fide" impressed sailors.[41] New Democratic-Republican Speaker of the House Henry Clay[42] proposed a 30 day embargo, which would precede a war with Britain. On June 18, 1812, Congress declared war on the British Empire.[43] The war could have been avoided. Tory British Prime Minister Spencer Perceval was assassinated and the subsequent Parliament was less enthusiastic about war with the U.S.[44]

[39] Table #4, Trotter, 385
[40] Trotter, 32
[41] Schouler, 408
[42] Walters Jr., 244
[43] McMaster, 457
[44] Schouler, 392

Much of the burden of the war fell upon Treasury Secretary Albert Gallatin.[45] One of the primary sources of credit to the Federal government had been the B.U.S.[46] After it expired, Gallatin had the unenviable task of securing loans for a war that was not very popular in the northeastern states he aimed to secure them from. Gallatin was able to sell $5 million in Treasury notes (bonds) at 5.4% interest. He worried about being able to raise another round of notes. In 1812 he was able to raise $16 million at 7.487%. The banks began to feel the stress of the Federal government crowding out the lending capacity and Treasury notes even traded for goods in some cases.[47]

In New England, there were quite a bit of New York bank notes and local banks began collecting these with the purpose of pooling their resources and redeeming them in New York. They were priced at a discount of up to 20%.[48] They went to New York and redeemed them. As the bank officials were returning, the specie was seized and returned to New York under the authority of the Collector of Customs in New York. The stated reason for the seizure was concerns that the specie was destined for Canada, but the Collector of Customs was a director at one of the banks from which the specie had been withdrawn.[49]

In Philadelphia, banks began severely limiting the notes that they accepted to being ones near Philadelphia and from well-established banks, which caused note valuations to begin to depress.[50] In 1814, British soldiers invaded and burned Washington D.C. [51] which caused most

[45] Wainwright, 33
[46] Womack, 157
[47] Womack, 159
[48] Smith and Cole, 5
[49] McMaster, 293
[50] Wainwright, 43
[51] Perkins, 340

of the United States to suspend redemption of specie.[52] The exception was portions of New England, which managed an informal cooperative system that was a precursor to "The Suffolk System," an early, private clearing house.[53] Finally, the Treaty of Ghent was signed in December 1814 and the war ended. Shortly after, General Andrew Jackson established the most impressive military victory for the U.S. at the Battle of New Orleans.[54] Due to communication lags, neither side of the battle knew the war was already over. Trade resumed, and ships began arriving in Philadelphia in mid-May according to publisher Mathew Carey who describes the times:

> "The country store keepers thronged to the city in crowds. Never probably was there so many here before at one time. The number has been calculated and I believe correctly at two thousand. They were all eager to purchase apparently fearly [SIC] of not being able to procure adequate supplies and each providing himself almost as largely as if he alone were to have a monopoly of the trade of his neighborhood. This was the golden age of Philadelphia."[55]

When the war ended, both the United Kingdom (U.K.) and the U.S. were facing public finance issues.[56] In 1815, the U.K. passed the Corn Laws, which was a protectionist tariff. In 1816, Congress passed a steep tariff that raised $22 million.[57] They also resumed redemption of specie at state banks as gold began to flow back to the U.S.[58]

D: The Second Bank, Booms and Crashes

It was the destitute state of public finances that would push Congress into chartering a new B.U.S. Whig Congressman Daniel Webster supported the new bank urging for, "[a] private,

[52] Sumner, 68
[53] Hammond, 551
[54] Schouler, 476
[55] Carey, 18
[56] McMaster, 357
[57] Taussig, 20
[58] Perkins, 72-74

national bank acting for financial stability with a longer term goal of a uniform currency."[59] Secretary Alexander Dallas proposed that the bank take on more roles, such as acting as a lender of last resort. There was much debate about whether the bank would be a public arm of government or a private bank until finally it was chartered as a private bank on April 16, 1816.[60] The Constitutionality of the bank was challenged when the State of Maryland attempted to tax it.[61] The case became a landmark decision, with the Supreme Court finding that Congress did have the implied powers to create a central bank under the necessary and proper clause.[62] By 1817, the (second) Bank of the United States (2nd B.U.S.) began an expansionary monetary policy by having branch banks increase the supply of notes.[63]

Despite post-war public finance issues, this was the "era of good feelings" during the Presidency of James Monroe. The general post-war economy was flourishing.[64] In 1816 Europe faced one of the largest crop failures[65] in recorded history as part of a global weather disruption from the eruption of Mount Tambora in Indonesia.[66] It was known colloquially as "eighteen hundred and froze to death." The U.S. was an agricultural based economy, this contributed to the boom during 1816-1818. The decade ended with the first major financial crisis of the U.S. and the end of the "era of good feelings."[67] In 1818, the 2nd B.U.S. began a contractive policy of credit and notes.[68] The Panic of 1819 was widely blamed on "irredeemable" bank notes which caused commodity prices to rise.[69] It is also speculated that the business down cycle was caused

[59] Wood, 129
[60] Womack, 167-191
[61] Hammond, 263
[62] U.S. Const. Art. I, § 8
[63] Womack, 211
[64] Smith and Cole, 30
[65] Taussig, 19
[66] Post, 5
[67] McMaster, 484
[68] Womack, 230
[69] Taussig, 18

by supply cycle problems resonating from the crop failures of 1816.[70] Agricultural exports were cut by the effects of Great Britain's Corn Laws which affected trade there, but also in the British Islands of the Caribbean Sea as well.[71]

The challenge of writing about the monetary policies of the Treasury in the Inter-bank Period is that there were none. The only real policy decision that came from the Madison administration was the suspension of specie redemption. It is hard to fault Madison for this, as it was an extreme situation. British troops were on American soil attempting to make trades and conditions unfavorable for free and fair exchange. The real monetary policies of this time were made by state legislators who authorized bank charters with capitol restrictions[72] and by hundreds of state banking directors. They were charged with the issuance of notes based on the specie that they had. It was an informal system, with a limited understanding of banking theory, but as it worked fairly well despite some inflationary fluctuations.

[70] Post, 158
[71] Matson, 272
[72] Wainwright, 26

SECTION TWO: ANALYSIS

The data from this period is very limited. The U.S. government did not collect information on state banks. There was not a Bureau of Economic Analysis, and the Census was still quite simplistic. The data that is available was generally recorded with very different purposes in mind than historic economic data. Thus the data is not always complete, compiled from multiple sources, and other means. Every effort is made to ensure that the analysis is of like terms. In situations like this it is easy to end up comparing apples and oranges. The methods of compilation and analysis will be stated to allow for methodological review.

A: The Money Supply

The way that modern monetary economists, in the U.S., track the money supply is through measurements called the M1 and M2. The M1 is defined as currency in circulation, traveler's checks, demand deposits, and other forms of checking accounts. The M2 is defined as all of those previously mentioned plus savings deposits, money market accounts, and smaller timed certificates of deposit.[73] The Federal Reserve System (Fed) tracks these aggregates and uses them in econometric models to assist them in determining monetary policy. Data from 1800 to 1820 is scarce in these respects, but Tables 1 and 2 shed some light on money supply of those years.

[73] Fox (Chair), 22

Table #1: The money supply of the United States, 1804-1820

Year	Specie Held by Public	Bank Notes Held by Public	Total Deposits	M1*
1804	17.5	13	--	--
(lapse)	--	--	--	--
1808	14	22.75	--	--
(lapse)	--	--	--	--
1810	15	--	--	--
1813	8	52	18	78
1814	7	40	--	--
1815	7.5	110	--	--
(lapse)	--	--	--	--
1819	4.5-8.0**	40.5	--	--
1820	1.3-18.0**	--	31.2/39.1***	--

[74] (Note: Numbers are in millions, *See below for commentary on difficulty of naming M1 or M2 for certainty ** range rather than a set number, *** two conflicting values)

Table #2: Banks in the United States

Year	Num.	Capital	Circulation	Specie
1800	28	--	--	--
(lapse)	--	--	--	--
1811	88/89*	42.6	22.7	9.6
(lapse)	--	--	--	--
1815	208	82.3	45.5	17
1816	246	89.8	68	19
(lapse)	--	--	--	--
1820	307	102.1	40.6	16.7

[75] (Note: Numbers are in millions, * two conflicting values)

Table #1 was compiled using numbers from Friedman and Schwartz's *Monetary Statistics of the United States* and a 1960 Census Bureau statistical abstract *Historical Statistics of the United States.* The reason that the two sources were combined is that Friedman & Schwartz listed the U.S. Bureau of the Census's historical data as one of their sources. In Table #2, the *Historic Statistics of the United States* are again used and compiled with Arthur Nussbaum's *A History of the Dollar*. Both are based on Albert Gallatin's accounting, but have different years due to other accounts being used respectively. All of these sources are credible

[74] Friedman & Schwartz *Monetary Statistics of the United States*, 218, and U.S. Bureau of the Census, 623
[75] Nussbaum, 64 and U.S. Bureau of the Census, 623

and in both cases the respective source tables use like terms, which is essential. The findings cannot be used because there is such insufficient data. Their magnitude is diminished but the data will still be useful for observations.

Information is available as to specie issuance by the Treasury, but that lacks the important information of how much of the issued specie is held by the general public and how much is held or deposited at the bank. Only one year can be added for a M1/M2 aggregate, but even then there is a basic problem of definition. It may be reasonable to assume that the deposits at banks are demand deposit rather than savings deposit, but it is an assumption, so distinguishing M1 versus M2 for certainty is impossible.

In the War of 1812 (1812-1815), specie held by the public fell to half the pre-war level in 1808. One might expect specie held by the banks to go up and they do but not in proportion and with substantial fluctuations.[76] Some of that specie went to purchasing Treasury notes (U.S. bonds). The Federal government was operating at a substantial deficit whose loans were almost entirely purchased domestically. This is also the time that the government suspended specie redemption (1814). The specie was actually increasing the vaults of state banks. This is also a rare time that U.S. specie became worth slightly less than the price of gold, which was unusual due to the fact that they were made out of gold and silver.[77]

It is supposed that inflation remained a problem, despite the fact that bank notes were redeemable for specie.[78] There is much speculation on the role of bank note over issuance on the price bubble that preceded the Panic of 1819.[79] Some suggest that this issuance led to an inflated

[76] Friedman & Schwartz, *Monetary Statistics of the United States*, 218
[77] Officer and Williamson
[78] Womack, 156
[79] Schouler, 110

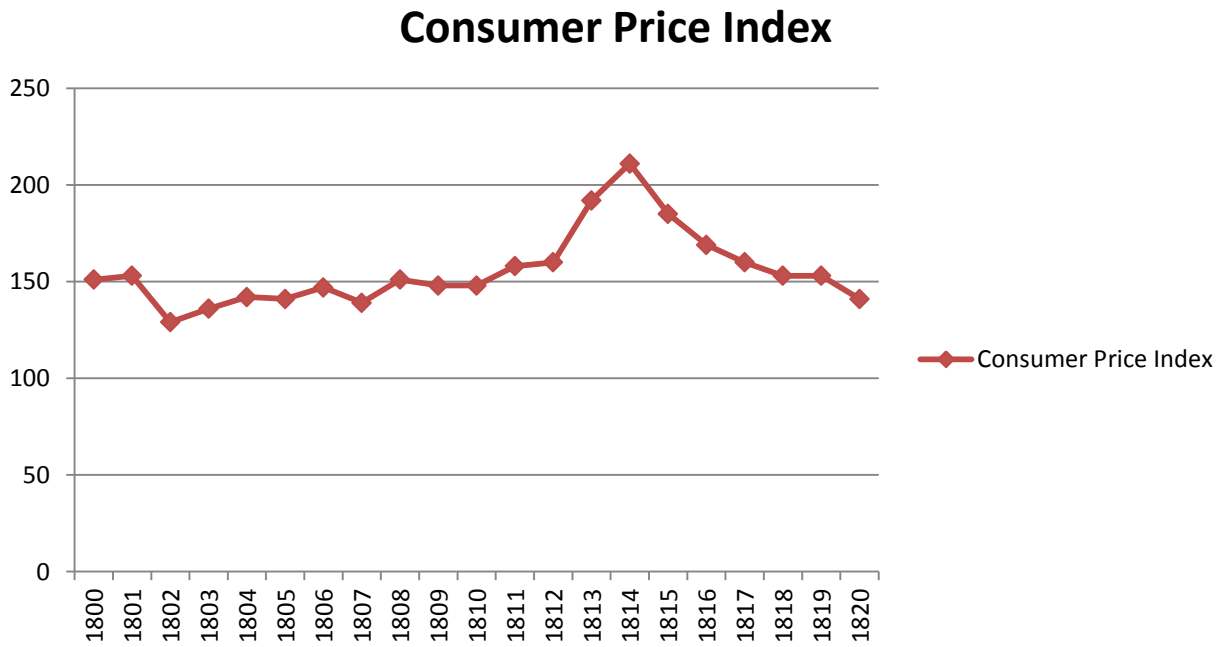
nominal price. Circulation peaked in 1815 during the suspension of specie redemption at 175% higher than the preceding year. After that even while the branches of the 2nd B.U.S. were attempting to promote notes, the overall numbers of notes in the hands of the public declines. If there actually was a problem of too many notes, which occurred during the peak before the charter of 2nd B.U.S., it seems antithetical to over issue further. This argument stretches the validity of our tables very far. Despite the tables using similar terms such as "bank notes held by the public," and "circulation," it may be easy to conflate terms. Also, it is important that we are not even attempting to track universally equal notes. The notes of a reputable bank would differ in value greatly from one in ill-repute, especially as the notes travelled. Inflation cannot be tracked using measures such as the M1 and M2. Other instruments must be used to track currency fluctuations in a more empirical way.

B: Price Stability

The Consumer Price Index (C.P.I.) is a way of tracking inflation at the consumer's level. It was first created in the twentieth century, but the series created by Paul David and Peter Solar allows for historical examination. They created a 200 year C.P.I. by combining several smaller consumer price studies, including official ones by the U.S. Department of Labor for later years to form a series. For the older years, they took retail prices as recorded from several studies and weighed them based on the consumer habits of the time, as recorded by Mathew Carey. They then use the Laspeyres price index formulation to calculate the figures. The index is based on fairly limited data, and its weights are comparing the preferences of a population that is not within the dataset, which is a cause for caution. David and Solar went to great lengths to make proper controls for these conditions and all processing of data are disclosed.

Despite its stated limitations, their long series C.P.I. has been applauded as the best of its kind.[80] The data set was accepted by the Bureau of Labor Statistics (B.L.S.) and included as part of the C.P.I. in the millennial edition of *Historical Statistics of the United States*, published by Cambridge University Press. For their data set, they weighted the David and Solar index again for continuity within their ones. They left the original numbers with the notation that anyone doing comparisons within that date range should use the David and Solar series as the numbers became so small in the broader range that there became rounding issues.

Chart #3: Consumer Price Index, 1800-1820



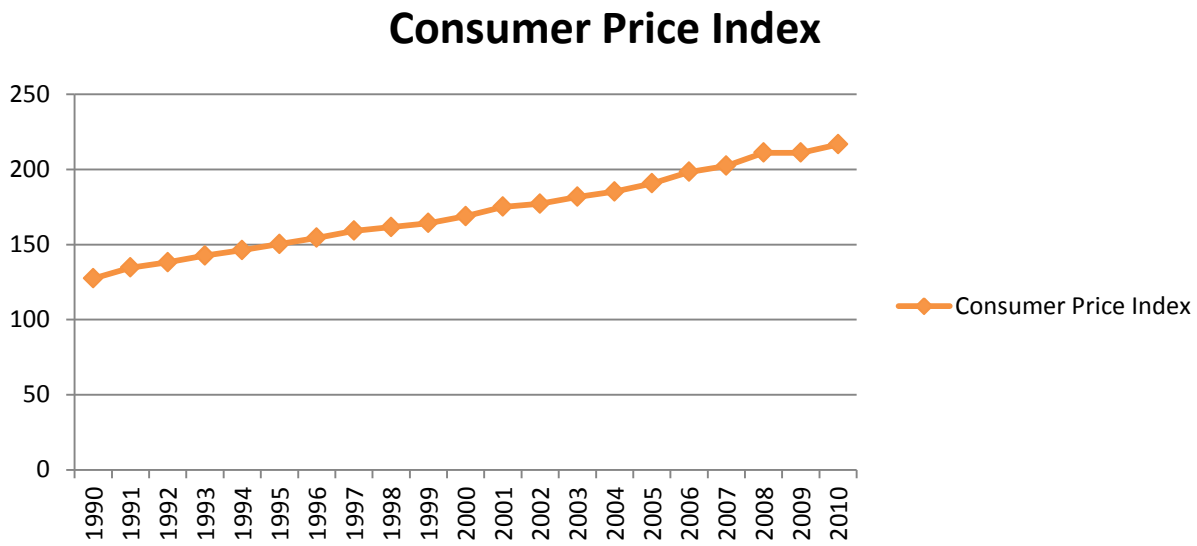
[81] (Note: X axis is defined in years, Y axis is defined as a ratio of updated period prices and base period prices weighted as to degree of preference. The base period for this index is 1860)

Chart #3 shows there was relative price stability outside of a sharp spike during the war. This further confirms that despite a private, largely unregulated bank note issuance, there is still relative price stability. It is unknown how many of these purchases were made in specie and how many in bank notes is unknown. Still, this is a positive result for the bank directors of the

[80] Officer, 1
[81] Table #5. David and Solar, 16

time. It confirms David Ricardo's suspicions about bank directors, "it is both against the interest and the wish of the Bank to exercise this power (over/under issuance of notes) to the detriment of the public."[82]

Chart #4: Consumer Price Index, 1990-2010



[83] (Note: X axis is defined in years, Y axis is defined as a ratio of updated period prices and base period prices weighted as to degree of preference. The base period for this index is 1982-1984)

The two C.P.I.'s in Chart #3 and Chart #4 do not use the same base, so their raw numbers cannot be directly compared. However, their respective means and standard deviations can be compared because they are part of the same series. The standard deviation for Chart #3 is 20.12 and the mean is 155.57. This makes the standard deviation 12.9% of the mean. The standard deviation for Chart #4 is 26.93 and the mean is 171.28. This makes the standard deviation 15.7% of the mean. The standard deviation of the mean for 1990 to 2000 is 21.60% larger than the standard deviation of 1800-1820. The effects of Fed monetary policies are noticeably more

[82] Ricardo, 359
[83] Table #6, U.S. Department of Labor

volatile than those of 1800-1820, when banks issued their own notes that were convertible to specie.

Furthermore, the looks of the charts and causes of their volatility are entirely different. Chart #3 has low volatility outside of one enormous spike. That spike coincides with the Inter-Bank Period and even more directly with the War of 1812 and suspension of specie redemption. It is reasonable to exclude these years, as they were a unique period of invasion, and prices returned to pre-war levels quickly and even depreciated below them. 1990-2010 includes two contractions and two foreign wars, but none of these episodes seems to affect the C.P.I. for the period in terms wild fluctuations. Rather, its source of deviation is a predictable dose of inflation every year. So if this inflation counts as price stability, then the Federal Reserve Board can be judged a success despite their standard deviation issues. If one excludes the war years of 1812-1815, the mean is 148.18 and the standard deviation is 9.79. This makes the standard deviation 6.6% of the mean. Compare those numbers to those of the past two decades shows an even more stark comparison. The standard deviation of the mean for 1990 to 2010 is 21.60%. This is 137.88% larger than the standard deviation of 1800-1811, 1816-1820 or without the Inter-Bank Period.

C: Interest Rates

According to economist Irving Fisher interest rates are the price of exchanging future goods for present goods.[84] These historical interest rates come from Sydney Homer's *A History of Interest Rates*. They are measured as "long term high grade" U.S. bonds during a period of a gold standard. The words "long term" are relative and "high grade" is entirely subjective. An

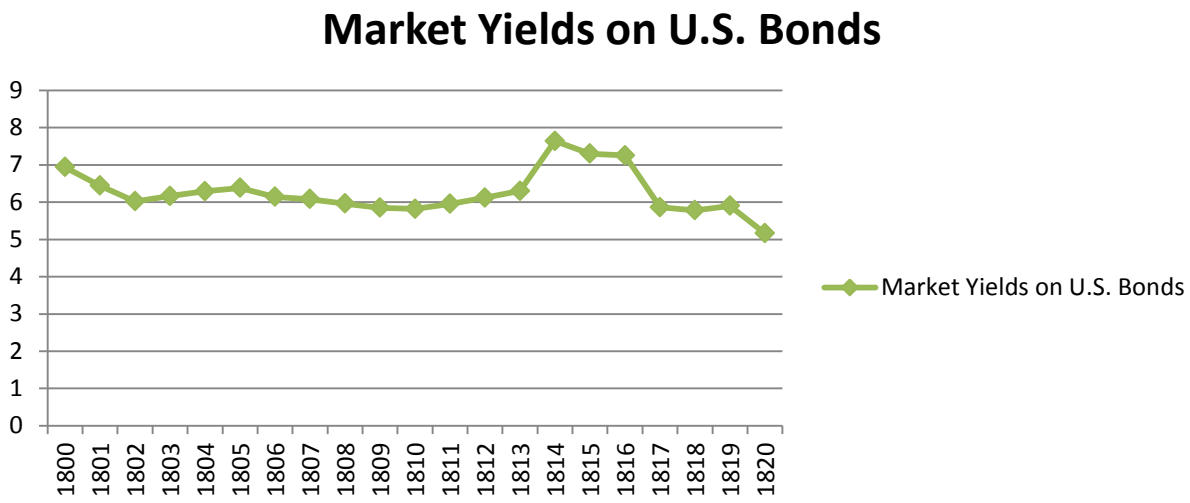
[84] Fisher, 102

investigation of when the loans were paid back, according to Treasury Secretary Alexander Dallas's report to congress on the loans from banks during the War of 1812, reveals that most only last a year and only one had a contract of five years.[85] The best way to compare U.S. securities from the nineteenth century to those of today is to use Treasury Inflation Protected Securities (TIPS). These pay interest in real terms rather than nominal ones, which is like bonds during the gold standard. Unfortunately, the shortest TIPS bond is a five year, but this is as close as is possible.

Is comparing a government of 11-31 years to that of the same, stable government of 214-221 years like comparing apples and oranges? Yes, the risk analysis between these two is completely different. There is also the issue of the Fed crowding out investors generally during expansionary policy times and especially in the recent period of Quantitative Easing.[86] Both of these rates are in terms that one could call real yields, so that should control the crowding out effect.

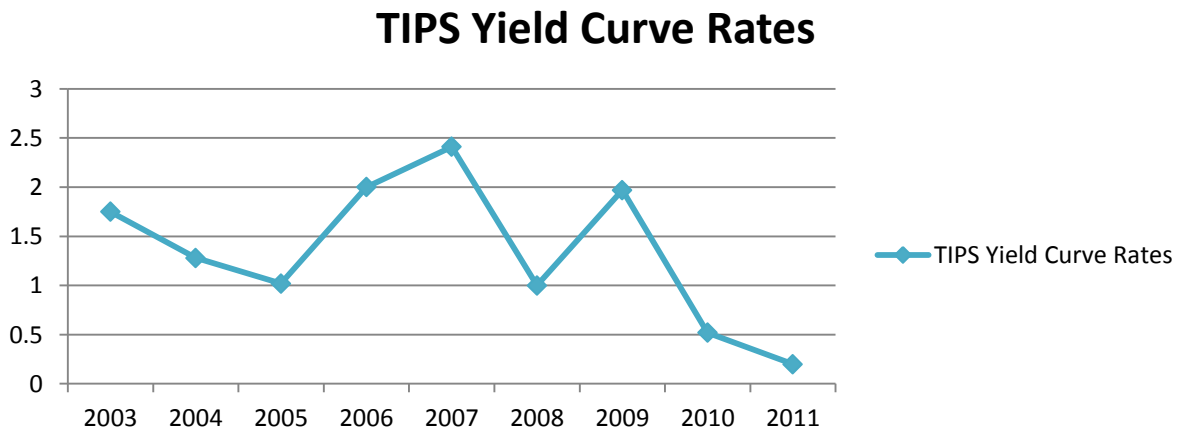
[85] Dallas, 2
[86] Federal Reserve Bank of New York

Chart #5: Historical U.S. Bond Yields, 1800-1820



[87] (Note: X axis is defined in years. Y axis is defined in yields of "long term high quality U.S. bonds")

Chart #6: TIPS Yields, 2003-2011



[88] (Note: X axis is defined in years. Y axis is defined in yield percentages of 5 year Treasury Inflation Protected Securities [TIPS])

[87] Table #7, Homer, 286
[88] Table #8, U.S. Department of the Treasury

Again, there is relative price stability for Chart #5 (1800-1820). The exception is the spike during the War of 1812 and especially the suspension of specie redemption. Because these are security yields, delayed effects of the time must be factored in. The TIPS are five year bonds, so a bond purchased in 2002 fared the best, due to the inflation over that period of time. Chart #6 is also exaggerated due to its shorter duration and exposure to an economic contraction. The other difference between the two charts is that the TIPS yield is not negotiated by the buyer and seller creating market equilibrium, but rather they correspond to fluctuations in the market equilibrium of the currency over the period of the bond. Thus, the buyer of TIPS does not have knowledge of what his or her return will be in advance of the purchase while buyers of Treasury bonds do. This incongruity makes it impossible to compare the two. The yield price of Chart #5 is market based and the yield price of Chart #6 is results based.

D: Regional Prices

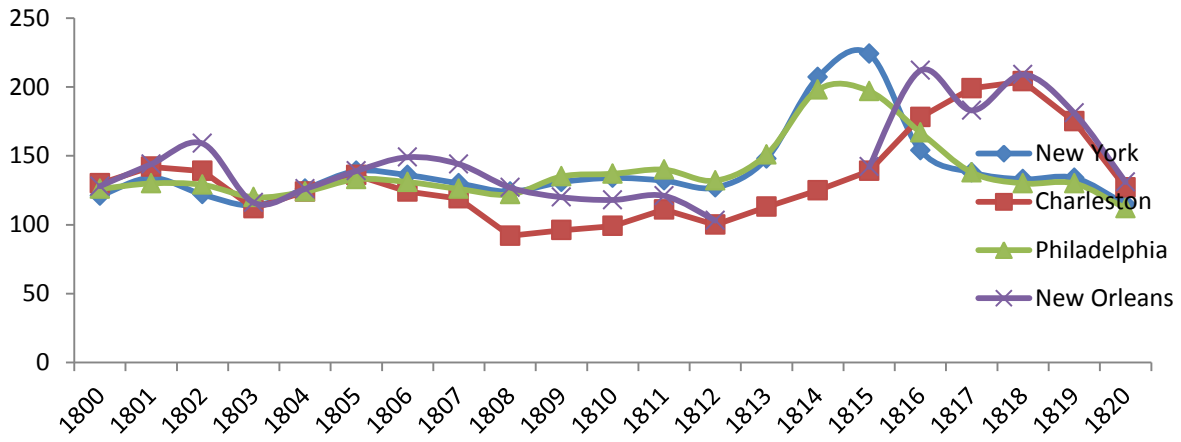
The concept of purchasing power parity was first expounded by Gustav Cassel.[89] A good will sell for the same price in separate countries (or regions in this case) if they are expressed in the same currency. It is generally used as a measure of market exchange between two currencies. If these prices do not match up, the differences in real prices exacerbate differences in nominal prices for the actual price of exchange. Because Chart #7 is using near real prices (gold standard) in the same currency and exchange rates are not being measured, the law of one price will be observed.

The data of wholesale prices was put together by Harvard professor Arthur Cole. It was a rigorous investigation using teams of researchers to find price data in archived newspapers. The

[89] Cassel, 31

work was praised by Chester Wright as "the most important work on price history."[90] This will be a good way to observe the price fluctuations in four American cities during the war and commodity spikes following the crop failures in Europe.[91]

Chart #7: U.S. Wholesale Prices in various cities, 1810-1820



[92] (Note: X axis is defined in years. Y axis is based on the price of a bundle of goods [see appendix for details])

Chart #7 illustrates relative purchasing power parity between the regions until the War of 1812. Before the war, prices were especially close until 1807, when trade frictions came to a head between Great Britain and the U.S. (as mentioned previously). Then the chart shows a depressed price at Charleston, possibly due to decreased exports from trade disputes with the Great Britain (Chart #2). During the war, there were substantial price fluctuations and data was not calculated in New Orleans during portions of the war. The chart also shows that the general price spike seemed to reverberate through New York and Philadelphia and then through Charleston and New Orleans.

[90] Wright, 924
[91] Post, 153
[92] Table #9; Cole, 126, 143, 159, 178

Regarding the supposed inflationary and corresponding deflationary policies of the 2nd B.U.S. which this essay already covered within the "The Money Supply" and "The Second Bank, Booms and Crashes" sections, Chart #7 shows wholesale prices in different cities and during this period there are two very different groups that may shed more light on this issue. In Charleston, it shows a generally rising price during the period of supposed inflation. In New Orleans, it shows more price fluctuations, but in New York and Philadelphia it shows closely matched falling prices through the end of the decade. Both Charleston and New Orleans then fall starting in 1818, which would be in line with the time frame of deflationary policies of the 2nd B.U.S. The theory that it was related to residual supply cycle issues from the crop failures of 1816 also fits well into this time frame. None of these potential causes, however, meets the threshold of causal evidence.

This may have something to do with the central bank or the crop failures, but it also likely is impacted by tariffs of 1815 in the U.K. and 1816 in the U.S. Just as the Great Depression was preceded by tariffs, we can observe a pair of tariffs preceding the Panic of 1819.[93] Are these tariffs wholly to blame for the Panic of 1819? That is doubtful, but it is reasonable to think that they played a part in terms of depressed wholesale prices by way of fewer buyers in export markets. Right after fighting a war about maritime trade restrictions, both the governments of U.K. and the U.S. replaced those complaints with tariff restrictions. The "era of good feelings" certainly could have been better and longer if the governments would have rewarded their economies with freer trade.

[93] Rustici, 30

E: Money as a Durable Good and Depreciation as a Function of Distance

There is some debate about whether or not money should be considered as a durable good.[94] The fundamental aspect of this debate is whether the value of money inherently depreciates over time. Milton Friedman informs, "Inflation is always and everywhere a monetary phenomenon."[95] Governments commonly allow their currency to depreciate during or following periods of war, crisis, and severe dips within the business cycle. Even in this period, when bank notes were redeemable for gold or silver specie, there was a suspension of payments. During this suspension, even the U.S. gold specie deviated lower from the price of gold.[96] The experience of inflation is widespread, so perhaps the average consumer can consider money as a durable good, even if it need not be.

During this period of early banking there is another aspect of bank note depreciation. They depreciated as a function of distance. In most cases, banks were only legally compelled to redeem their own notes. Banks would regularly redeem other bank notes, often at par, but sometimes at discount. This discount was probably on local conditions, which were based functions of risk, time, and costs until redemption. French economist Jean-Baptiste Say spoke on this matter in his 1803 magnum opus *A Treatise on Political Economy*, "wherever a paper-money has been established, the difference between its value in the home market, where it has utility, and its value in foreign markets, where it has no utility, has afforded a fruitful field for speculators."[97]

[94] Hicks, 238
[95] Friedman, *The Counter-Revolution in Monetary Theory*, 33
[96] Officer and Williamson
[97] Say, 280

CONCLUSION

This essay has shown the success of free, state banking principles in terms of price stability. Throughout the years of comparison there was very little in the way of regulated monetary policy. The main way that the central banks enjoyed their monopolies during this era was through the exclusive note license which made them marginally more attractive to merchants and having the government as their exclusive client. Not through the coercive central planning of central bank monetary policy.

What I find is that the Interbank Period was not a mistake of history, but rather a genuine issue that continues today. Many critics continue to agree with Jefferson that central banking is monopolistic and unconstitutional. Even more contend that the monetary policies of attempting to moderate the business cycle cause more long term problems than they solve with nominal price adjustments. I observed greater price stability in the absence of any central banking apparatus or any real regulation. Naturally, the foundation of this private, free banking is its base in commodities. Even if Friedrich Hayek is correct when he called gold a "wobbly anchor"[98] in that it has price fluctuations based on market equilibrium changes other than monetary ones, it is a better long term hold of value than a century of Fed policies.

The primary responsibilities of the Fed are to promote price stability, maximum possible employment and moderate interest rates.[99] The employment and the interest rates cannot be compared. Chart #4 shows a stable and steady inflation of the dollar. This general inflation erodes its utility as a store of value. To compare directly how much the value of the dollar has been eroded, one only need look at the B.L.S. reweighted figures for David and Solar's C.P.I.

[98] Hayek, 82
[99] Board of Governors of the Federal Reserve System

They show 11.730 as the C.P.I. in 1820 and 13.7 in 1932.[100] On the most recent B.L.S. release, the C.P.I. was figured at 223.467[101], an increase of 1,905% from 1820, but also 1,631% since 1932 when the U.S. ended redemption of currency for gold. Neo-classical models of inflation targeting have had serious consequences of action. The comparison between the policies of the free, state banks and those of the Fed clearly illustrate that the unregulated state banks exhibit more price stability and a better store of value for the dollar.

[100] Hanes, 3-158
[101] U.S. Department of Labor

APPENDIX:

TABLE #3: Chartered Banks of Selected Cities and their Capital

Year	Philadelphia	Boston	Baltimore	New York
1800	3,843,000	2,000,000	1,500,000	2,850,000
1801	3,843,000	2,000,000	1,500,000	4,340,000
1802	3,843,000	2,000,000	1,500,000	4,340,000
1803	5,643,000	3,800,000	1,500,000	4,340,000
1804	5,643,000	3,800,000	1,500,000	4,340,000
1805	5,643,000	3,800,000	3,750,000	4,340,000
1806	5,643,000	3,800,000	4,350,000	4,340,000
1807	5,643,000	3,800,000	4,350,000	4,340,000
1808	5,643,000	3,800,000	4,350,000	4,340,000
1809	6,893,000	3,800,000	4,350,000	4,340,000
1810	6,893,000	3,800,000	6,750,000	6,340,000
1811	6,893,000	3,800,000	6,750,000	7,340,000
1812	6,893,000	6,800,000	6,750,000	13,840,000
1813	6,893,000	7,800,000	6,750,000	13,840,000
1814	6,893,000	8,550,000	6,750,000	13,840,000
1815	9,043,000	8,550,000	6,750,000	13,840,000
1816	9,043,000	8,550,000	6,750,000	13,840,000
1817	9,043,000	8,550,000	6,750,000	13,840,000
1818	9,043,000	9,050,000	6,750,000	14,340,000
1819	9,043,000	9,050,000	6,750,000	14,340,000
1820	9,043,000	9,050,000	6,750,000	14,340,000

(Note: Table only includes data on bank capital at time of charter, but does not indicate any fluctuations thereafter)
(Kroos, *Financial Institutions*, 111)

TABLE #4: U.S. Total Exports

Year	Exports
1800	70,971,780
1801	94,115,925
1802	72,483,160
1803	55,800,033
1804	77,699,074
1805	95,566,021
1806	101,536,963
1807	108,343,150
1808	22,430,960
1809	52,203,231
1810	66,757,974
1811	61,316,831
1812	38,527,236
1813	27,855,997
1814	6,927,441
1815	52,557,753
1816	81,920,452
1817	87,671,569
1818	93,281,133
1819	70,142,521
1820	69,691,669

(Trotter, 385)

TABLE #5: United States Consumer Price Index (1800-1820)

Year	David & Solar	Bureau of Labor Statistics
Base year = 100	1860	1982-1984
1800	151	12.562
1801	153	12.729
1802	129	10.732
1803	136	11.314
1804	142	11.814
1805	141	11.730
1806	147	12.230
1807	139	11.564
1808	151	12.562
1809	148	12.313
1810	148	12.313
1811	158	13.145
1812	160	13.311
1813	192	15.973
1814	211	17.554
1815	185	15.391
1816	169	14.060
1817	160	13.311
1818	153	12.729
1819	153	12.729
1820	141	11.730

(David and Solar, 16; and Bureau of Labor Statistics)

TABLE #6: U.S. Consumer Price Index 1990-2010

Year	C.P.I.
1990	127.4
1991	134.6
1992	138.1
1993	142.6
1994	146.2
1995	150.3
1996	154.4
1997	159.1
1998	161.6
1999	164.3
2000	168.8
2001	175.1
2002	177.1
2003	181.7
2004	185.2
2005	190.7
2006	198.3
2007	202.4
2008	211.1
2009	211.1
2010	216.7

(Note: 1982-1984 is 100)
(U.S. Department of Labor)

TABLE #7: Interest Rates 1800-1820

Year	"Longer term," "high grade" U.S. bonds Annual Yield
1800	6.94
1801	6.44
1802	6.02
1803	6.16
1804	6.29
1805	6.38
1806	6.14
1807	6.08
1808	5.96
1809	5.85
1810	5.82
1811	5.95
1812	6.12
1813	6.3
1814	7.64
1815	7.3
1816	7.25
1817	5.86
1818	5.78
1819	5.9
1820	5.16

(Homer, 285-286)

Table #8: TIPS Securities 2003-2011

Year	5 year bond, Annual Yield
2003	1.75
2004	1.28
2005	1.02
2006	2
2007	2.41
2008	1
2009	1.97
2010	0.52
2011	0.2

(Note: annual rates taken from the first recorded day in the year)
(U.S. Treasury Department)

TABLE #9: U.S. Wholesale Prices at various cities

Year	New York	Charleston	Philadelphia	New Orleans
1800	121	130	126	128
1801	134	142	130	144
1802	122	139	129	159
1803	114	112	120	116
1804	126	124	124	126
1805	139	136	133	139
1806	136	124	131	149
1807	130	119	126	144
1808	124	92	122	127
1809	131	96	135	120
1810	134	99	137	118
1811	132	111	140	121
1812	127	100	132	103
1813	148	113	151	(lapse)
1814	207	125	198	(lapse)
1815	224	139	197	142
1816	154	178	167	212
1817	138	199	138	183
1818	133	204	130	209
1819	134	175	130	181
1820	115	127	112	131

(Note: All values are the January values of the tables. New York is wholesale prices with constant weights; Charleston is a weighted all-commodity index of wholesale prices; Philadelphia is an un-weighted 186 commodity geometric index of wholesale prices; New Orleans is weighted all-commodity index of wholesale prices. 1813 and 1814 are not available due to war time conditions in the city.)
(Cole, 126, 159, 143, 178)

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