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RECESSION OF 1797?**

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Abstract

This paper presents a monetary explanation for the U.S. recession of 1797. Credit expansion initiated by the Bank of the United States in the early 1790s unleashed a bout of inflation and low real interest rates, which spurred a speculative investment bubble in real estate and capital intensive manufacturing and infrastructure projects. A correction occurred as domestic inflation created a disparity in international prices that led to a reduction in net exports. Specie flowed out of the country, prices began to fall, and real interest rates spiked. In the ensuing credit crunch, businesses reliant upon rolling over short term debt were rendered unsustainable. The general economic downturn, which ensued throughout 1797 and 1798, involved declines in the price level and nominal GDP, the bursting of the real estate bubble, and a cluster of personal bankruptcies and business failures. We detail the scope of the credit expansion, price level movements, fluctuations in interest rates, and the investment errors that these conditions spawned in several sectors of the economy.

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A Monetary Explanation for the Recession of 1797

1. Introduction to the Crisis

In February of 1798, after a spectacular fall from fortune, Robert Morris, the famed “financier of the revolution” and formerly one of the wealthiest men in America, was arrested and put into debtor’s prison. Morris and his partner John Nicholson had issued \$10 million in paper debt claims, a vast sum at the time, to finance their speculative land ventures. When this paper pyramid collapsed Morris was ruined and the economic loss was felt by his extensive list of creditors- a list which included virtually every prominent American of the day. Morris and Nicholson were not alone in their fate. They were merely the biggest players in a recognized “Bubble of Speculation.”¹ The bubble began to burst late in 1796, leaving a flurry of economic failure and distress in its wake. Jefferson proved prescient when he wrote to Madison that “the prison is full of the most reputable merchants, and it is understood that the scene is not yet got to its height.”²

Beginning in 1796, output in the U.S. began a period of stagnation that lasted for over two years. As shown in Figure 1, per capita real GDP growth, which had averaged a stout 3.22% per year from 1790 to 1795, declined, turning negative in 1797 and averaging an anemic .13% for the 1796-1798 period. The index of industrial production over the same period declined from 6.699 to 6.213, a decrease of over 7%, as shown in Figure 2. The fledgling American nation was experiencing an economic recession.

This paper investigates the recession of 1797 in an effort to further our understanding of the factors that contributed to the crisis.³ Unlike previous accounts, we focus in detail on the pivotal role played by the 1790s equivalent of monetary policy.⁴ Our thesis is that the inflationary practices of the First Bank of the United States (BUS) set into motion an unsustainable investment boom which necessitated an inevitable bust as slow-moving

¹ The phrase was used by Theodore Sedgwick, who praised the popping of this bubble as “a very happy circumstance, though vast numbers, and among them many worthy people, are involved in ruin by it...” Theodore Sedgwick to Rufus King, July 1, 1798, Copies of Letters from Theodore Sedgwick to Rufus King, 1787-1802, Theodore Sedgwick (Sedgwick II) Papers, box 9, vol. 10, Massachusetts Historical Society, Boston.

² Thomas Jefferson to James Madison, Jan. 28, 1798, in Paul Leicester Ford, ed., *The Writings of Thomas Jefferson*, 10 vols. (New York, 1892-1899), 7: 188.

³ Traditionally, this episode has been called the panic of 1797. We prefer to use the name ‘recession of 1797’ because there was neither a financial panic nor a banking crisis of the sort that is typically connoted by employing the term ‘panic’.

⁴ While the BUS was not a central bank and there was no “monetary policy” in the sense these terms are understood today, many economists and historians have argued that the institutional complex of the BUS and US Treasury, under the leadership of Alexander Hamilton, fulfilled essentially central banking roles, and as such the BUS was a “quasi central bank” (Perkins 1994, 250). Additionally, Hamilton was successful in introducing several policies aimed at expanding the money supply in the US, such as the bimetallic dollar standard, introduced in 1792; a privileged bank of issue (the BUS), and liquid government bonds, established by Hamilton's funding system.

market forces worked to correct the monetary disturbance.

We argue that the BUS engaged in monetary overexpansion through the early 1790s. The resulting inflation pushed down real interest rates, as indicated by inflation-adjusted current yields on US Treasury bonds. The resulting distortion of marginal returns to investment and saving led entrepreneurs to overinvest in transportation improvements, banking, manufacturing, and other capital-intensive projects. Furthermore, the expectation of inflation induced individuals to bet on continued price increases by borrowing money to purchase real estate. Thus the atmosphere of easy money created by the BUS also channeled resources into land speculation and fueled local real estate bubbles.

Eventually a correction to the credit overexpansion took place through the price-specie flow mechanism. However, the process of adjustment was slow and required a painful monetary contraction to take effect. Initially, as the newly injected bank credit worked its way through the economy it created a disparity in international prices that led to a reduction in net exports. By 1795 specie was flowing out of the country, and the growth rate of bank-issued money tapered off. As a result, the money supply and price level began to fall, causing the real interest rate to rise sharply. In the ensuing credit crunch businesses reliant upon rolling over short term debt were rendered unsustainable. At this point many investments that had appeared reasonable when they were undertaken were revealed to be errors.

Our explanation is consistent with, but slightly different from, the observations of Bordo and Wheelock (1998), who briefly describe the episode within the broader context of the historical record of U.S. price and financial stability.⁵ Bordo and Wheelock take note of the fluctuation in the general price level in the mid 1790's and argue that it exacerbated the financial distress by creating signal extraction problems for entrepreneurs.⁶ However, they do not offer an explanation for the swing in prices, which we link to bank credit expansion, nor do they describe the specific historical and institutional causes of the crisis.

Our hypothesis is an alternative to the standard explanation that the financial distress was initiated when the Bank of England authorized the suspension of specie payments in February 1797. Chew (2005) recounts how disruption of credit following the suspension ruined American merchants and diminished trans-Atlantic trade. Chew

⁵ Following Lucas (1972), Bordo and Wheelock argue that changes in prices led to overinvestment. Our explanation is the same, but with an additional claim that besides undertaking too many investments, individuals also invested in the wrong lines of production. Specifically, they invested too much in the capital sectors vis-à-vis sectors closer to the production of immediate consumption goods, as theorized for instance by Garrison (2001).

⁶ Bordo and Wheelock state that price fluctuations led to a "major banking panic", but "major financial crisis" would be a more appropriate term because there was not an unusual number of bank failures. The first widespread banking panic in the U.S. didn't occur until 1819.

argues that the suspension caused a recession, but only when coupled with French privateering of American vessels arising from the Quasi-War, along with a rash of yellow fever epidemics in American cities.

We believe the traditional explanation is insufficient because it does not explain the timing of business failures, which began *en masse* in December of 1796. It is difficult to see how the bank suspension in England in February of 1797 could cause American businesses to begin failing in December of 1796. We do not deny that the suspension caused a contraction of credit that harmed American business. On the contrary, it eliminated the last remaining credit opportunities for highly leveraged enterprises that were already facing a domestic contraction, and effectively sealed their doom. The suspension is therefore a particularly important factor in explaining the length and the depth of the recession. We merely argue that it exacerbated an already existing crisis, which had its origin elsewhere.

We also recognize that the real shocks to the economy did not help matters. The decline of foreign trade stemming from the French Revolutionary Wars exacerbated already stagnating conditions.⁷ And yellow fever hit Philadelphia hard, particularly in the second half of 1798 when it caused a “complete cessation of business” there (Thorp 1926, 114). But although real disturbances matter, we place less emphasis on them than Chew does as an explanation for the recession of 1797. Given the radical fluctuation of prices, and the actions (and inactions) of the monetary authorities, a financial crisis was inevitable and may have led to a recession with or without these other complications. Moreover, the years surrounding the turn of the 18th Century were turbulent, with war and disease breaking out frequently. Yet in many other instances they were not enough to cause a full-blown recession in the absence of destabilizing monetary conditions. The recession of 1797 was primarily, and in origin, a monetary recession.

2. Spawning an Investment Boom: the Impact of the First BUS

Speculative bubbles typically grow up around emissions of new bank credit (Kindleberger, 1978). In the 1790's the first BUS provided such a credit expansion. The BUS opened for business in December 1791, and immediately began pyramiding credit upon an initial reserve of \$2 million in specie.⁸ The effusion of over \$2.5 million in BUS liabilities within the first few months' banking operations resulted in inflation. As seen in

⁷ The value of all U.S. exports fell from \$59 million in 1796 to \$51 million in 1797, before rebounding to \$61 million the following year. Trade then increased sharply as American merchants supplied vital materials to both France and England, who were engaged in war. During the recession American imports fell even more sharply than exports. Falling from a peak of \$81 million in 1796 to a low of \$69 million in 1798, they rebounded again in 1799 (Historical Statistics of the United States, 2009).

⁸ The sum of \$2 million was a theoretical maximum based on the capital limit of \$10 million stipulated by the bank's Congressional charter, one-fifth of which was to be in the form of specie. Actual records indicate that the bank's specie stock remained well below this stipulated amount for its first several years of operation. See Wettereau (1985).

Figure 3, the total of banknotes and deposits issued by the BUS continued to grow over the course of the 1790s. By 1796 credit expansion on the part of the BUS alone amounted to a 43% increase over what the total money supply had been in 1790. Figure 4 shows estimates of US monetary aggregates, including BUS-issued money, for the 1790s. The magnitude of expansion raises the question: was all this new money warranted by existing demand, or did it amount to an overexpansion of credit?

Bank credit can expand in an economy without any single bank engaging in over-issue of notes or deposits. For example, if there is an unmet or growing demand for intermediation, then the expansion of credit may simply reflect individuals realizing gains from trade in the credit market. A preponderance of evidence suggests that the U.S. economy was liquidity constrained in the early 1790s (Wright 2002). Therefore a reasonable first hypothesis is that the expansion of credit by the BUS was merely an effective means for individuals to find otherwise unobtainable funding for profitable ventures.

In opposition to the benign expansion hypothesis, the first thing to note is that the BUS was capable of engaging in a temporary over-expansion of credit, at least in theory. The reason why is that it was not subject to unrestricted competition in the issue of banknotes and deposits. The BUS was not technically a central bank in the modern sense.⁹ It was not granted a monopoly of note issue nor did it explicitly regulate the commercial banking system.¹⁰ However, over its tenure the BUS was the only U.S. bank exempt from an otherwise nation-wide restriction on branch banking. It was also the only U.S. bank whose notes were accepted by the government for payment of customs duties, giving its notes a quasi-legal tender status (Nussbaum 1937, 1063-1064). These legal privileges were sufficient to ensure that the check against its over-issue by other banks was impaired, if not inoperative.

Under conditions of unrestricted or “free” banking, expansion by each bank is limited by the rising marginal cost of keeping currency in circulation (Selgin 1988; White 1999, 56-61). The greatest profits for a given bank are realized when the various costs and benefits of expansion are equated on the margin. Expansion by a single bank beyond the equilibrium quantity where these equi-marginal conditions are satisfied results in the loss of specie reserves to other banks and a reduction in profits. Therefore when

⁹ Our preferred definition of a central bank is any bank with unique legal privileges that also acts as the government’s banker. Under this definition, the BUS was a central bank. However, the five distinguishing characteristics of modern central banks are monopolization of note issue, acting as a banker’s bank, regulating commercial banks, being a lender of last resort, and conducting monetary policy. The BUS did not perform all of these functions. See (White (1999, 71-87) for a concise discussion of the evolution of and rationales for these functions of central banks.

¹⁰ Redlich (1951, 96-100) and Timberlake (1993, 1) argue that the BUS could not have been intended to be a central bank for the simple reason that there was no significant commercial banking system at the time to regulate. However, Sylla, Wright, and Cowen (2009) point out that Hamilton envisioned using the bank as a vehicle for conducting monetary policy right from the outset.

operating in a competitive banking environment, the self-interest of each bank is sufficient to keep the issuance of its own note and deposit liabilities in line with actual demand for them, and with the actual supply of credit by depositors. The “principle of adverse clearings” serves to keep overall credit expansion by individual banks in check (Selgin 1988).

This is not the case with respect to a bank with legal privileges such as those conferred upon the BUS. The wide geographic acceptance of BUS notes and their usefulness for making tax payments made them as good as specie for most purposes and valuable in a way that the notes of other banks were not. If the BUS were to supply credit beyond the equilibrium quantity in the market, it would not face an immediate specie loss to other domestic banks. On the contrary, the other banks would have found it advantageous to hold BUS notes as reserves instead of presenting them for immediate redemption. Expansion was therefore not restrained by the swift discipline imposed by competing domestic banks. Instead, an overexpansion of credit by the BUS would have to be brought back into equilibrium through the less direct means of specie drains to other countries through international trade.

The corrective contraction which takes place through international movements in prices and goods is caused indirectly by the price-specie-flow mechanism commonly attributed to Hume (1987 [1742], 35-58) and directly by changes in purchases of foreign commodities (Frenkel and Johnson, 1976). The entire process can take years to complete. Unlike when free and open bank competition predominates, discoordination in economic activity can develop because of the slow feedback mechanism. Interest rates artificially lowered by credit expansion during this interim do not correctly reflect the marginal valuations of savers and borrowers of funds. Businesses are presented with a flood of cheap credit while consumers are presented with a lower marginal return to saving. At this stage an unsustainable investment and production boom can emerge. When bank credit is eventually forced to contract, the wedge between saving and investment is revealed and clusters of businesses may fail. Both the boom and consequent bust comprising this trade cycle are initiated by centralized bank credit expansion.

Given that the theoretical preconditions existed for a potential overexpansion of credit by the BUS, the question remains: did an overexpansion actually take place, setting into motion the trade cycle? And was the speculative malinvestment large enough to have caused the recession in 1797? In theory an expansion is large enough to create a trade cycle if it induces a swing in the price level. In order to answer whether expansion by the BUS in fact caused such a swing in prices, we begin by examining the extent of the expansion.

Extent of the Credit Expansion

The BUS charter called for an initial capitalization of \$10 million, comprised of 25,000 shares at \$400 par value.¹¹ 5,000 of the shares were to be subscribed by the government and the rest paid for by the public, with the restriction that no person could purchase more than 1,000 shares. As part of Hamilton's liquidity expansion program, newly acquired government debt was rolled into the bank, as investors were required to pay 25 percent of the share price in specie and the rest in US 6 percent bonds (Holdsworth 1910). The size, scope, and privileged position of the BUS ensured that its actions would exert a strong influence on the money supply and credit conditions in the US.

It did not take long from the official beginning of BUS operations on Dec. 12, 1791 for it to pump, through new lending, vast sums of money into the economy (Holdsworth 1910, 29). By the end of its first two weeks of business, the BUS had loaned into the private sector nearly \$1,000,000 (Cowen 2000a, 1046). In addition to this, the bank immediately loaned \$2,000,000 to the cash-bereft US government, so as to enable the Treasury to have a fund with which to purchase its required 1/5th subscription of the bank's total authorized capital (Holdsworth 1910, 32-33).¹² Within just one more month the bank's short-term loan accounts had ballooned to over \$2.6 million, an increase of 277%. To facilitate lending, the bank naturally also engaged in the issue of banknotes. The first fortnight saw an emission of \$134,268 in BUS notes, which had risen to \$886,684 just one month later (Cowen 2000a, 1046).¹³ Throughout the remainder of the decade, the BUS balance sheet remained a sizable component of the overall money supply, as indicated in Figure 4.

Scholars readily acknowledge the role of bank credit expansion in laying the groundwork for the boom conditions of the early 1790s. Cowen (2000a, 1042) clearly states, "when the BUS opened its doors for the first time in December 1791, it flooded the economy with credit." He notes that securities speculators in particular were "quite pleased at the prospect of easy money" that this lending represented (2000a, 1046). Sylla, Wright and Cowen tell the same story, and even add that "the BUS, ... had somewhat recklessly over-expanded its credit creation when it first opened (2009, 75)."

Overexpansion by the BUS found its first expression in a securities market bubble that collapsed in early 1792. Sylla, Wright, and Cowen (2009; Cowen 2000a, 2000b) recount the details of this "panic of 1792," which primarily consisted in the rise and fall of

¹¹ Compare this figure with the combined, total capital for all other existing banks of less than \$3 million (Perkins 1994, 235). Thus the opening of the BUS represented a 4-fold expansion of the banking sector over a very short period of time.

¹² The government would for many years remain the bank's single biggest customer, having borrowed to the tune of \$6.2 million from the bank by 1795 (Holdsworth 1910, 45).

¹³ The discrepancy between the note issue and total loan balance represents the importance of deposit (checking) accounts, even at this early stage of banking in America.

America's earliest asset bubble. Initially, emissions of fresh bank credit fueled widespread overconfidence in the belief that stock and bond prices would continually rise. The resulting asset bubble popped when the BUS reined in the quantity of money and credit it made available, leading to a liquidity crisis and to the ruin of highly leveraged traders, most notoriously William Duer. The losses to investors were severe, but they did not lead to a recession in the overall economy.¹⁴

We agree with this interpretation of events, but would add that the credit expansion touched off by the BUS had broad economic ramifications even beyond the securities panic of 1792. Although the securities bubble popped very soon after the initial credit expansion, this did not signal the end of easy money nor the resolution of all of its effects. It is true that by early March of 1792 short-term loans outstanding had declined by over \$2 million, a 23% decrease (Cowen 2000a). But referring back to Figure 3, the temporary decrease in lending is almost totally obscured by the overall sustained expansion. While the BUS did rein in its lending operations it by no means let all or even most of the air out of the credit balloon it had launched. Despite the temporary downtick in lending, which was the proximate cause of the securities panic in March of 1792, BUS lending, which was later pyramided upon by the surge of new banks that the BUS inflation instigated, remained large. The very existence of the BUS, the quantity of loans and currency it was able to issue, and the banking boom it fostered, set the stage for price inflation.

So as to our earlier question of whether BUS expansion was large enough to create a trade cycle, the answer is yes. As we endeavor to show in the next several sections, the influx of money and credit pushed prices up, brought real interest rates down, and led to overinvestment in many areas of the economy, from large new ventures in transportation and manufacturing to manic real estate speculation. General price inflation and an unsustainable level of industrial investment persisted for several years, with a final correction not occurring until 1797-1798. In other words, the boom-bust cycle inaugurated by the BUS in 1791-1792 led to far-ranging macro-economic distortions beyond a mere securities bubble; the events of January-March of 1792 are only the beginning of this business cycle story.

Price Inflation

Given the instant and continual increase in the money supply wrought by BUS credit expansion, prices were bound to rise. The well-documented boom in securities prices that occurred in 1792 is the most obvious speculative "outlet" for the inevitable price inflation occasioned by a credit boom on the scale that the BUS engaged in. Not as well known, but nevertheless equally well documented, are the general price-level increases that came on the heels of BUS monetary expansion themselves. Nettels (1962, 121)

¹⁴ Real estate prices did drop in the aftermath, however, and commerce became sluggish for a short time in certain areas, especially in the financial centers.

notes that BUS operations alone pumped as much as \$20,000,000 in brand-new money into the economy (in the course of its first 10 years), on top of an existing money supply in the range of \$16-\$29 million prior to the bank's existence. The resulting effect on the price level comes as no surprise. Figure 5 shows inflation rates in the 1790s, as measured by the wholesale price index and consumer price index.

The money, and hence price, inflation of the 1790s was no accident, but a deliberate, coordinated effort, primarily under the auspices of Alexander Hamilton, to keep government bond prices up (and hence interest rates down), stimulate business activity (particularly in capital-intensive industries such as manufacturing), and generally inflate asset markets. Historians have pointed out that the price inflation of the early 1790s was the result of deliberate efforts by Hamilton to raise prices, and specifically real estate prices, after the "depressed" economic times of the 1780s (Nettels 1962, 112-113; Miller 1964, 259). As Esther Rogoff-Taus explains,

[Hamilton] believed a shortage of currency existed and should be remedied. He felt that business was being retarded, interest rates were high, and usurers were flourishing because of the lack of currency. He thought that capital is created in the process of increasing the circulating medium. If capital were expanded, business enterprise would flourish and the "improvement of the revenue" be guaranteed (1943, 15).

Hamilton's means in accomplishing this inflation were a combination of a fully-funded government debt and a government-supported bank of issue.^{15, 16} Combined with Hamilton's well-known desires to promote commercial and manufacturing interests, the national debt *cum* national bank scheme was calculated to bring about a rise in prices across the country. As Nettels explains,

If businessmen were to promote manufacturing, they would need an enlarged supply of money and the opportunity to obtain loans or bank credit. Hamilton wished to increase the country's stock of paper currency, but he objected strongly to proposals that the government should issue it. If paper currency was to serve a good end it must be readily convertible into coin, dollar for dollar. But how might a large fund of sound paper currency be based on a small supply of coin? That could be done, Hamilton thought, if the paper was issued by a single bank that would have the backing of the government (1962, 117).

¹⁵ A key feature of the 1st BUS was that 75% of its equity shares were to be purchased with US Treasury bonds; the massive demand from investors for BUS stock thus likewise propped up demand for US securities, keeping US bond prices high and their yields low (Wright 2008)

¹⁶ The BUS was not Hamilton's first proposal for a central bank; he had promoted the idea in two different proposals addressed to Robert Morris, Superintendent of Finance for the Continental government, in 1779 and 1781. While both proposals were similar in substance, though not detail, to the BUS, it should be noted here that one major aim of these plans was to bring down interest rates, especially interest the government had to pay on its own debt. The 1779 proposal capped government loans at 4%, while the 1781 plan would have capped all lending at a rate of 8% (Holdsworth 1910, 10-11).

Because all of this new money entered the economy through the banking system in the form of bank credit, it necessarily had the effect of putting downward pressure on interest rates; if the market for loans is to clear after a positive supply shock, the immediate result must be for prices to drop to bring this inflated supply in line with existing demand. The expected cheapening of interest rates did indeed happen in the wake of BUS credit expansion.

Reduction in Interest Rates

Interest rate data for 1790s America are sparse, owing not so much to a relative lack of financial dealings, but to the lack of organized efforts at collecting financial statistics. Interest rate data for this era are further complicated by the fact that US states, inheriting the practice from British usury laws, almost universally capped legal interest rates at 6% (Homer 1977, 274). The BUS was likewise subject to this pricing constraint; its congressional charter prohibited it from charging more than 6% interest on any loans it was to make (Hepburn 1903, 70; Holdsworth 1910, 20). Owing to these difficulties, instead of attempting to produce a series of actual rates derived from particular transactions, we provide an estimate of real interest rates based on inflation-adjusted current yields of US government securities.¹⁷ Figure 6 presents, for the 11-year period 1790-1800, current yields of US 6% bonds, as well as estimates of real (i.e. inflation-adjusted) yields. The data shown in Figure 6 buttress the common-sense notion that, in terms of real returns, interest rates came down in the wake of the massive credit expansion, and subsequent price inflation, of the BUS. This claim is made entirely unsurprising in light of the fact, noted above, that bringing interest rates down was part of Hamilton's avowed policy in his debt-funding, national bank, and industrial stimulus plans.

Investment Overexpansion

A consequence of the credit expansion ushered in by the BUS was heightened business investment in several areas of the US economy, in the ensuing years. In retrospect, it is clear that much of this investment turned out to be an unsustainable waste of resources. A large proportion of transportation improvement companies, manufacturing concerns, and real estate development schemes launched during the easy-credit era of the early 1790s turned out as failures, leaving abandoned projects and ruined investors in their wake. The following sections chronicle some of the more prominent failures by industry. This "upsurge in business activity," which saw 17 new

¹⁷ Current yields are found by dividing the coupon (6%) by the price as stated in terms of discount or premium from a base of 100; we used the latest available quotations for each year. Real yields are then calculated by subtracting that year's inflation rate, as measured by David and Solar's CPI numbers from the nominal current yield. The methodology here is accepted economic practice; see, for instance, Heim and Mirowski, 1987. "Interest Rates and Crowding Out During Britain's Industrial Revolution." *J. of Economic History* 47,1; p. 119-121.

corporations chartered between August 1791 and March 1792 alone (Nettels 1962, 122), was a direct consequence of the easy money policies of Hamilton and the BUS. In what follows, we trace out patterns of over-expansion in three of the most capital intensive, finance-dependent sectors of the early US economy: banking, transportation infrastructure, and manufacturing.

i. Banks

Newspapers referred to the speculative endeavors to set up new banks in New York City in early 1792 as “bancomania.” In NYC alone, no fewer than 3 new banking enterprises—the Million, Merchants’, and Tammany banks, equal in number to the private commercial banks already in operation—were proposed, and the promoters set about raising capital. Sobel, after discussing the feverish speculation in stock of these banks, notes that none of the proposed new banks survived to begin business: “...the talk of the town in February was the new banking structure, with all rushing to buy shares in the Million, Tammany, and Merchants' banks; now these institutions were no longer mentioned except when accompanied by a curse. They too were victims of the panic, and would never open their doors” (1988, 28).

Yet it was not only in NYC that the banking industry expanded; new money created by the BUS invited many imitators. In all, 13 new banks were founded in 1792, the height of the nationwide banking boom. Table 1 gives details of the number of new banks by year. Of the 13 banks proposed or actually begun in 1792, 4 were aborted before they could begin operations. New bank creation subsided a bit after 1792, but failure rates remained relatively constant.

The rate of growth in banking, coming as it did on the heels of the establishment of the BUS, suggests that the latter set off a boom in the industry; the fact that a relatively high proportion of these banks were mere speculative fantasies and never entered into business (despite extensive efforts to raise capital and/or secure legislative charters) suggests that the banking boom was to some extent an indulgence in what might nowadays be called “irrational exuberance,” with over-excited banking entrepreneurs eager to ride on the coattails of the credit boom initiated by the BUS. Yet it might be reasonably argued that neither the absolute nor proportional amount of bank failures necessarily tells of a credit-induced boom-bust cycle. After all, banking was a young, upstart industry in the 1790s; as with any new endeavor, high failure rates during the “breaking-in period” might be expected, and the 20% failure rate for 1791-1796 might indeed appear low in this context. It is not our contention that correlation in this respect amounts to causation; indeed, if the banking sector alone showed this experience in the 1790’s, we would not be in a position to talk about an overarching business cycle. Yet, as we document below, banking proved to be the most successful, in terms of sheer numeric failure rate, of all the highly capitalized industries of the era. The fact that boom conditions—dramatic upticks in new-business formation—followed sharply by a bust, with correspondingly higher and higher failure rates by industry, can be observed

in these sectors, indicates the existence of an underlying causal connection to the inflationary, easy-money policies of the BUS.

ii. Transportation

The investment boom ushered in by easy BUS credit was by no means limited to "bancomania." In a prelude to later waves of road, canal, and rail boom-bust cycles in the 19th century, BUS credit expansion in the early 1790s set off a rash of investment in new transportation schemes. Miller describes the almost insatiable demand for ownership of such projects as an outlet for the newly created "wealth":

Early in 1792, when a company organized to construct a canal between the Susquehanna and Schuylkill rivers put one thousand shares of stock upon the market, over five thousand people bid for the shares. Later in the year, the Lancaster Turnpike Company offered six hundred shares of its stock, requiring a down payment of \$30—with the result that thousands of would-be purchasers besieged the Pennsylvania State House, each clutching \$30 or more in cash. About the same time, General Schuyler organized two companies—the Western Inland [L]ock Navigation Company and the Northern Inland Lock Navigation Company—for the purpose of constructing an all-water route from Schenectady to Lake Ontario. This sudden burgeoning of corporate enterprise and the wealth that seemed to be springing up on every hand prompted one American to exclaim that "this must be the richest country under the sun." (1964, 303)

Not surprisingly a large proportion of these companies went bust by the end of the decade once the mania subsided and the credit dried up. The Schuylkill & Susquehanna Company, founded and led by revolutionary financier and famous Philadelphia banker Robert Morris, and General Schuyler's New York Projects (Western and Northern Lock co's) were among the more notable failures (Davis 1917, 152-157; 164-167).

The canal mania of the 1790s featured false expectations and high failure rates. As Davis stated, the canal boom was characterized by "premature enthusiasm, disappointment, and waste" (1917, 174). The high-flying expectations were stimulated by the general boom precipitated by the easy-money policy of the BUS; the disappointment resulted from the policy-induced nature of the credit expansion. In addition to the large-scale failures described above, no fewer than 6 additional, smaller canal companies chartered in the period 1791-1793 also failed (Davis 1917, 175-182). Yearly start-ups and failure rates are provided in table 2.

iii. Manufacturing

The statistically most substantial picture of malinvestment stemming from BUS credit expansion arose in the embryonic manufacturing sector of the US economy. Virtually all manufacturing corporations that were begun during the high times of the BUS boom, and most that were begun in the preceding 3 or 4 years, had failed by the end of the

decade.

The historical record is too sparse to indicate exactly to what extent these corporations relied directly on bank credit for their funding. However, the pattern of manufacturing investment, which peaked in 1792-1794, the monetary inflation of this era, and the undeniable reduction of real interest rates suggests that the manufacturing sector, more than any other area of the economy, fell victim to malinvestment. It is also the case that monetary expansion provided much of the funds required for subscription to the stock of these brand new business start-ups. Statistics on new manufacturing concerns, and failure rates, are provided in table 2.

The most grandiose of new manufacturing concerns that were launched or expanded in the early 1790s was the Society for Establishing Useful Manufactures (SEUM). Not by coincidence, it was also one of Hamilton's pet projects. Hamilton and his friends expected great things of the SEUM, hoping it would become the poster child for state encouragement of industry, or what might today be called a "public-private partnership". Within 4 years of its auspicious start, and even with hundreds of thousands of dollars in equity and debt financing, it proved a total failure.¹⁸ Large empty buildings and a factory ghost town were left behind as monuments.

The SEUM was the most ambitious of 1790's attempts at large-scale, capital-intensive manufacturing in the US. But in a sense the SEUM was typical of corporate endeavors of the era. Davis concluded that "economic conditions were not ripe" for large-scale (corporate) manufacturing concerns in the 1790s (1917, 255). Nettels reckoned that failure was about the norm for the manufacturing sector of the 1790's:

The progress of manufacturing on the principle of the factory system was seriously interrupted after 1792. One after another of the most promising concerns—the Boston Sail Cloth Manufactory, the Boston Glass House, the Hartford Woolen Factory, the New York Manufacturing Society, and the Beverly Cotton Manufactory—either failed or suspended operations (Nettels 1962, 125)

So why was failure so pronounced in manufacturing? A monetary theory of malinvestment provides a lens by which to understand waves of business failure in long-term, finance-dependent investments.

¹⁸ The SEUM was launched with an initial planned capitalization of \$1 million, larger than the total combined capital of all going manufacturing concerns at the time. The giant manufacturing complex located in the early "company town" of Patterson, NJ, was intended to produce a diverse output consisting of "paper, sailcloth, linen, cotton cloth, shoes, thread, stockings, pottery, ribbons, carpets, brass and iron ware" (Miller 1964, 300).

3. A Monetary Explanation for the Bust and Recession

The boom conditions of the mid 1790s did not last. By the end of 1796 contemporaries began noticing an unusual clustering of business failures. Writing in December, Benjamin Rush tallied 150 in Philadelphia alone. In the words of Mann (2002, 202), "By December 1796 business failures were epidemic." The bust phase of the 1790s business cycle featured an increase in real interest rates, declining prices (especially in capital/wholesale goods industries), a decrease in industrial production activity, and a rash of business failures and personal bankruptcies. According to Charles Jordan Tabb (1995), the economic bust in 1797 "caused widespread ruin and the imprisonment of thousands of debtors" and was the impetus for America's first bankruptcy law.

An explanation for the timing of these failures can be traced back to the preceding collapse in the money supply. In 1797 nominal GDP dropped due to a fall in prices. This is significant because nominal GDP represents the gross nominal incomes that individuals had available to pay back fixed debts. Referring back to figure 4, the U.S. money supply peaked sometime in 1794 and began falling sharply in 1795. The fact that the money supply contracted some 1-2 years before the decline in output is exactly the timing and direction of change one would expect if monetary conditions were causing the recession.

Monetary changes work slowly and only influence output after long and variable lags (Friedman, 1969). As money exits the economy at specific points it first influences the marginal valuations of money for particular individuals. Those whose cash balances fall first offer less nominal units in exchange than they otherwise would have. Eventually prices are bid down, but a period of some time must pass before the change in the money supply finds expression in changing prices. This sort of lag occurred in 1795-1796. As can be seen from figure 5, prices continued to rise until sometime in 1796 and began falling through 1798. So what caused the collapse of the money supply? In the next section we argue that it was a result of an outflow of specie as a consequence of an imbalance in the terms of international trade.

The Retraction: Outflow of Specie and Increases in Interest Rates

Sustained inflations and deflations, such as the inflation and subsequent deflation noted above, are always a result of changes in the money supply (Friedman 1968). During the early 1790s the money supply expanded every year, peaking in 1794. As explained above, it is no coincidence that 1794 was also the year that the early expansion by the BUS leveled off, as shown in Figure 3. But then, beginning in 1795, the money supply began falling every year until 1798. As seen in the breakdown of the money supply components in Figure 4, the fall was due to a specie drain. This specie drain was actuated through the process of international trade. Americans purchased more goods abroad than foreigners purchased in America, leaving a deficit in the balance of payments that had to be financed by the exportation of specie abroad. Figure

7 shows how the sharp decline in the US current account (US net exports) in 1795-1797 corresponds with the specie outflow.

Under a classical specie standard, such as existed in America in the 1790s, changes in the balance of trade are caused by differences in prices between economies. These price level discrepancies, in turn, are the result of different rates of domestic inflation. The high inflation rates in America in the early to mid 1790s were the primary cause of the ensuing trade deficit. Monetary expansion caused prices in America to rise and made purchases of American goods relatively more expensive for foreigners. As a consequence, foreigners bought fewer American goods and so the total amount of American goods exported abroad fell. Likewise, monetary expansion caused the relative price of foreign goods for Americans to fall, and so the amount of imports increased.

US foreign trade accounts for the era are summarized in Table 3. For the years 1795-1798 there is a cumulative current account deficit in the range of -\$28 to -\$68 million (depending on varying estimates); whichever data set is used, it is clear that the US net balance of trade turns sharply negative for the second half of the 1790s. The consequent specie outflow and decline in the money supply provided a transmission mechanism for an economy-wide recession. As explained above, under a free banking system an overexpansion by a single bank is checked by the loss of specie reserves from the overissuing bank to competing banks. But in this case the overexpansion by the BUS was corrected through the less direct route of international trade. The specie drain resulting from an economy-wide disequilibrium in international prices is not restricted to the overissuing bank. Instead, the loss of reserves abroad indiscriminately affects the entire economy's banking system.

The loss of gold reserves caused banks to rein in their credit for fear of insolvency. The credit contraction destroyed the profitability of long-term investment projects and eventually led to an economy-wide business contraction. Bank lending in the 1790s primarily consisted of short-term loans, such as discounting merchants' bills of exchange. This meant that an entrepreneur who wanted to invest in a long-term business project had to borrow money and then roll over the debt at regular intervals. Entrepreneurs in the early half of the 1790s, as explained above, were lured into undertaking such investments because of artificially low real interest rates. In 1794 and 1795 real interest rates were even negative, meaning that borrowing was particularly attractive, especially for entrepreneurs who expected a continuation of the inflationary conditions.

As the credit expansion led to price inflation and an eventual correction through specie exportation, however, banks began tightening credit. As shown in Figure 6, real interest rates bottomed out in 1795 and then began to rise sharply. When businesses went to roll over their short-term debt in 1796 it was suddenly much more difficult to find willing lenders. Real interest rates were suddenly 14 percentage points higher than the year before. The dearth of credit, so bitterly complained about, caused clusters of

businesses to begin failing already in December of 1796. Industrial production, as shown in Figure 2, began to drop off sharply. The decline in the economy-wide industrial production marked the beginning of the recession.

What about Alternative Explanations?

At first glance a monetary explanation for the recession of 1797 is consistent with the facts. But is it a necessary explanation? What are the alternative hypotheses, and are they missing anything? Previous accounts have not identified a full boom-bust cycle in the 1790s US economy, but broadly speaking two explanations for the recession of 1797 are apparent in the literature. The most prominent has been the tendency to link the performance of the early US economy directly to those of its European trading partners. A prime example is given by Douglas North: "One need look no further than to events in Europe to account for almost every twist and turn in the fortunes of the American economy during these years [1793-1814]" (1961, 36). North observed the recession in 1797 but thought it merely reflected changing conditions in overseas trade.

Chew (2005) likewise traces the recession overseas, but argues that it was triggered when the Bank of England suspended redemption of its banknotes in February 1797. William Pitt authorized this move by the Bank of England, which was facing a complete specie drain in consequence of the credit expansion it had been engaged in to finance Britain's wars against Revolutionary France. This suspension of specie payments constituted a restriction of credit, making it harder for American merchants involved in the trans-Atlantic trade to finance their voyages, wounding the market for American exports and likewise Americans' ability to import European goods.

These developments overseas are relevant, but not the sole factors explaining the recession of 1797-1798. First of all, the ups and downs of foreign trade alone do not explain the boom-bust phases of US business activity through the 1790s. Foreign trade fell but rebounded very quickly as European belligerents in the Napoleonic Wars sought vital foodstuffs and war materiel from America. If foreign trade alone were the driving force of US economic activity, how can we account for recession in the midst of an export boom?

The influence of fluctuating foreign trade conditions on the early US economy cannot be ignored, nor can the place of speculators in securities, land, and industry. Our goal here has been to point to a more foundational element that underlies both the foreign trade sector and international credit markets—the role of credit overexpansion by the burgeoning US banking system, with the BUS as its leader. The overexpansion of money in the early 1790s constituted a failure of legally-privileged central banking: first by making money and financing available at artificially low rates and thereby encouraging business speculation, then by creating an economy-wide contraction as credit tightened and domestic prices fell as a by-product of the price-specie flow mechanism.

4. Conclusion

While it is difficult to pinpoint a proximate cause of the 1797-1798 downturn, and further research on this question is called for, the fact that the economy did slide into a recession at this point, a short 5 years after America's first experience with a central banking system, does not bode well for the macro-economic performance of the BUS, especially in light of the evidence of price inflation and malinvestment. We are hopeful that further research into the exact nature of business financing, and business failures, especially in the capital-intensive sectors of the US economy discussed above, will provide precise confirmation of this thesis. Still, we are confident in claiming that, at least in broad terms, the credit expansion unleashed by the First Bank of the United States corresponds to the monetary overexpansion theory of the boom-bust cycle that was witnessed during the late 1790s in the US economy.

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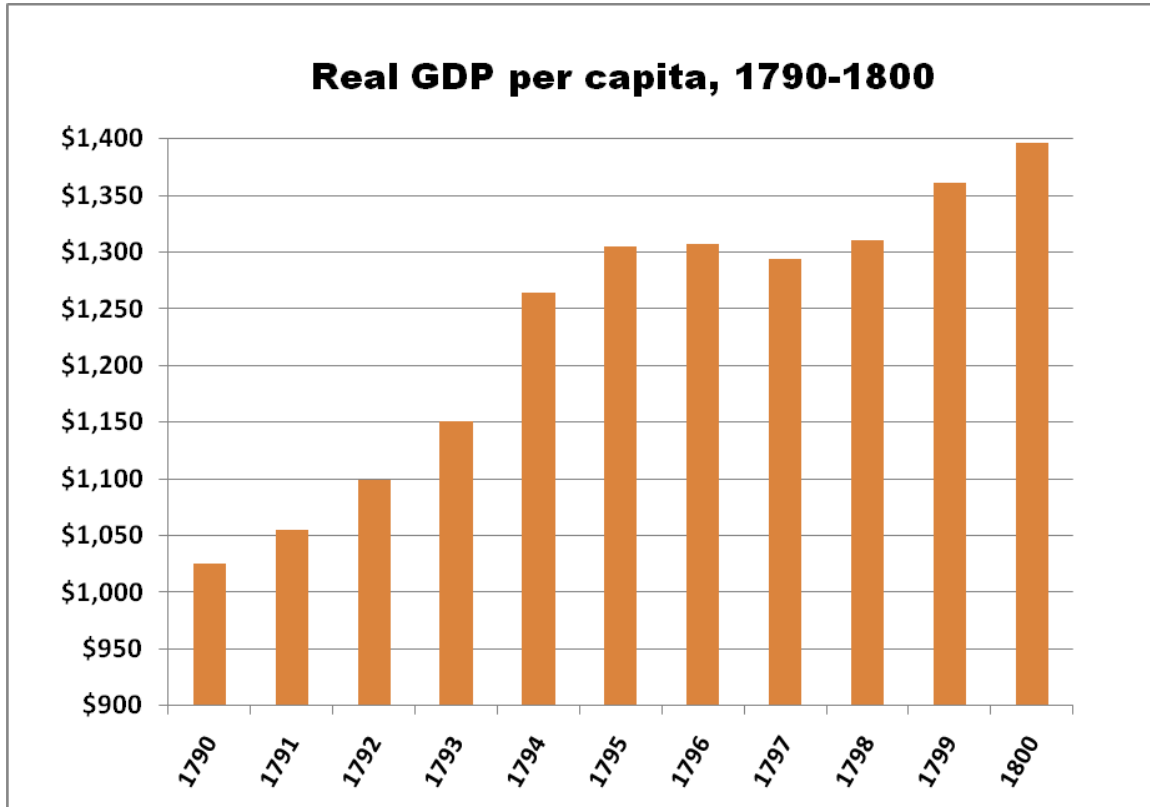
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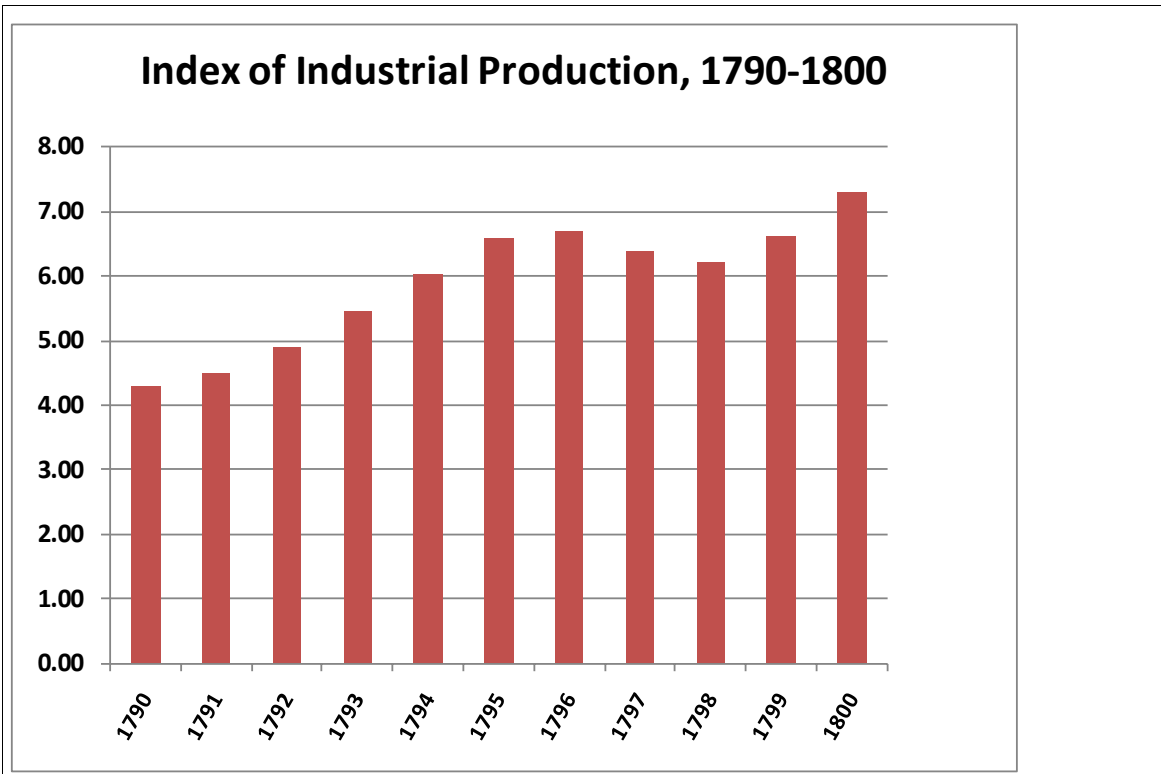
Tables and Figures

[Figure 1: US GDP per capita, 1790s]



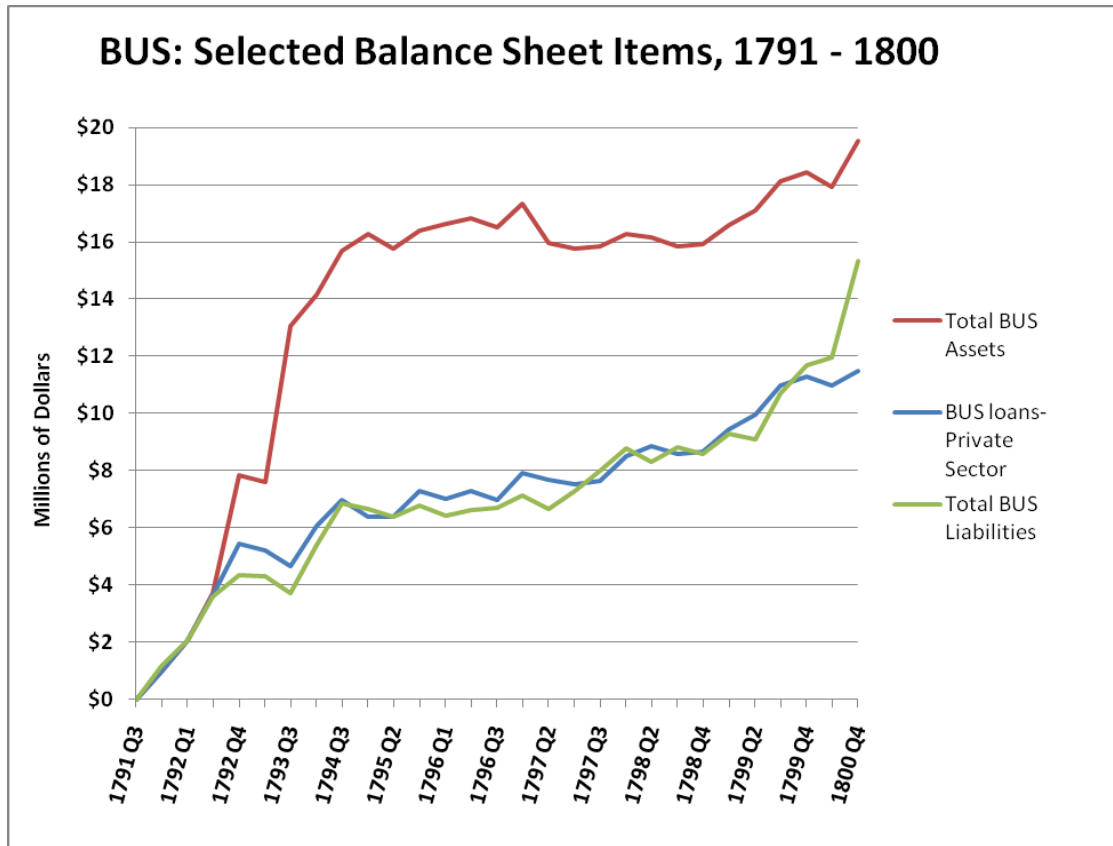
Source: Johnston and Williamson (2010); note: GDP in constant 2005 dollars.

[Figure 2: US Industrial Production, 1790s]



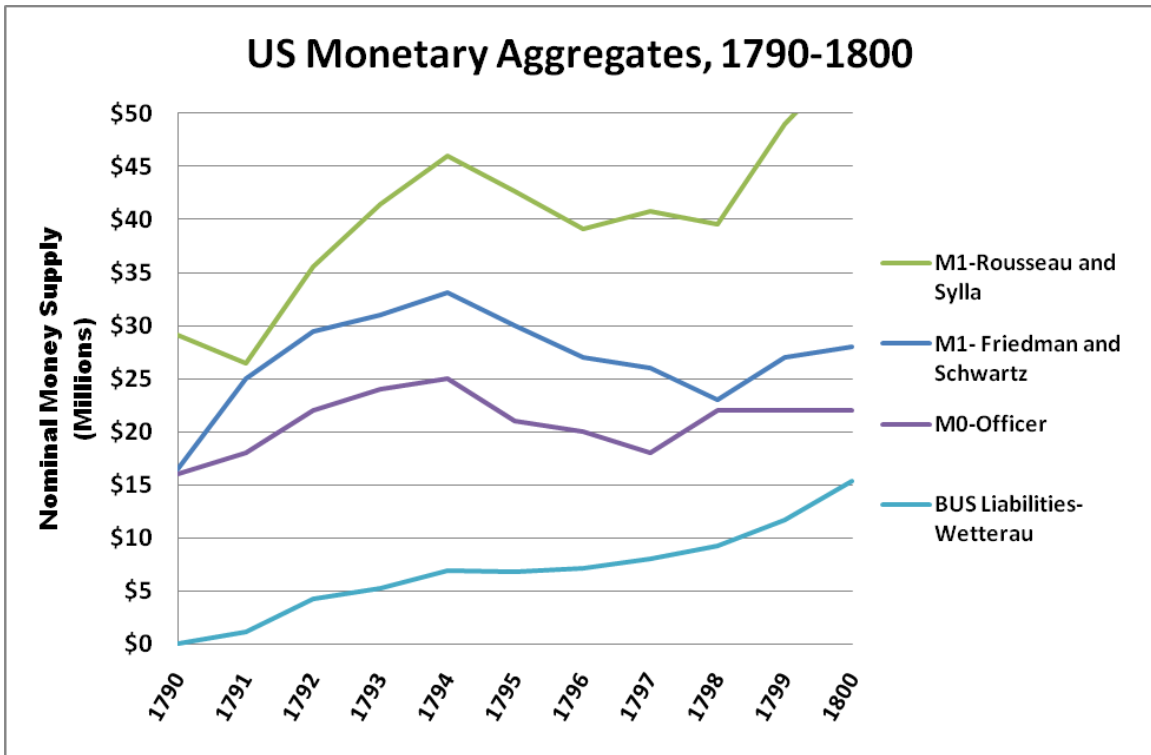
Source: Davis (2004)

[Figure 3: BUS Balance Sheet, 1790s]



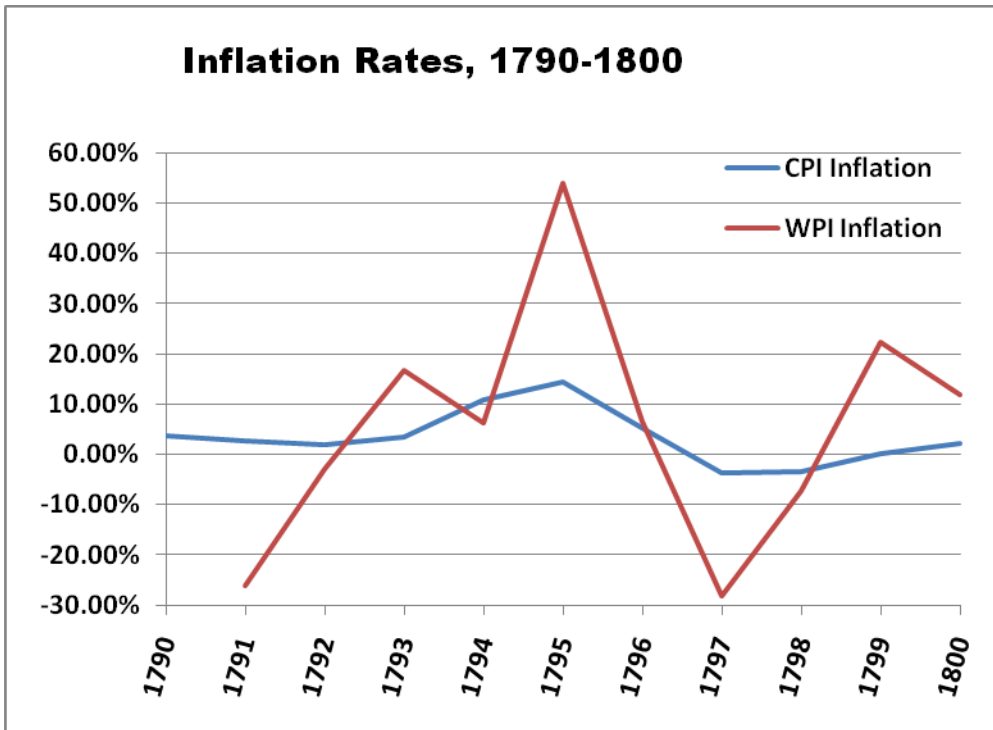
Source: Wetterau (1985)

[Figure 4: Money Supply Components, 1790s]



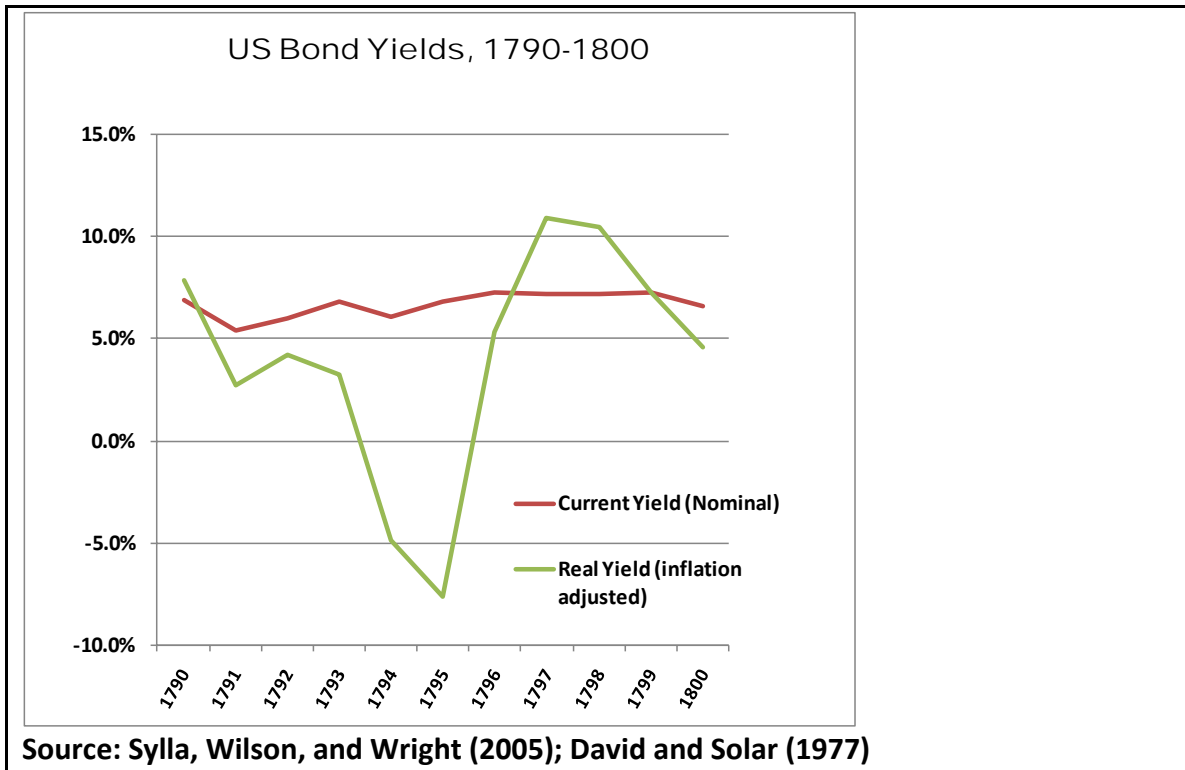
Sources: Rousseau and Sylla (2004); Friedman and Schwartz (1968); Officer (2010); Wetterau (1985)

[Figure 5: Consumer and Wholesale Price Inflation, 1790s]

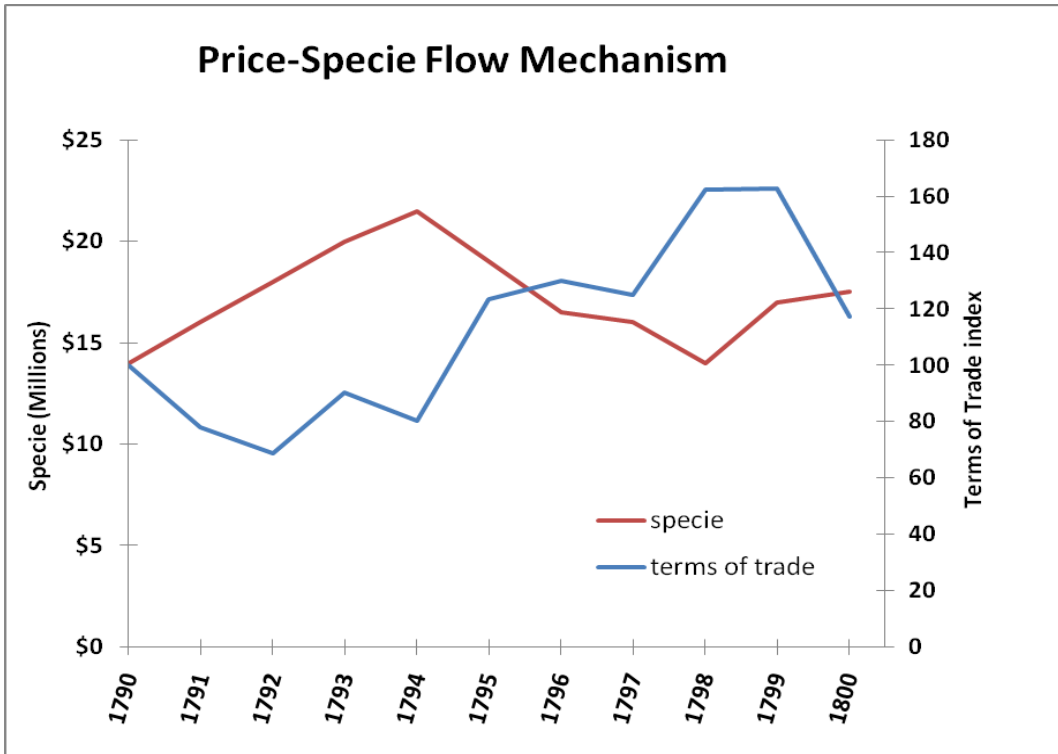


Source: Wholesale Price Index: Department of Commerce (2009); Consumer Price Index: Officer (2010).

[Figure 6: Real Interest Rate Yields, 1790s]

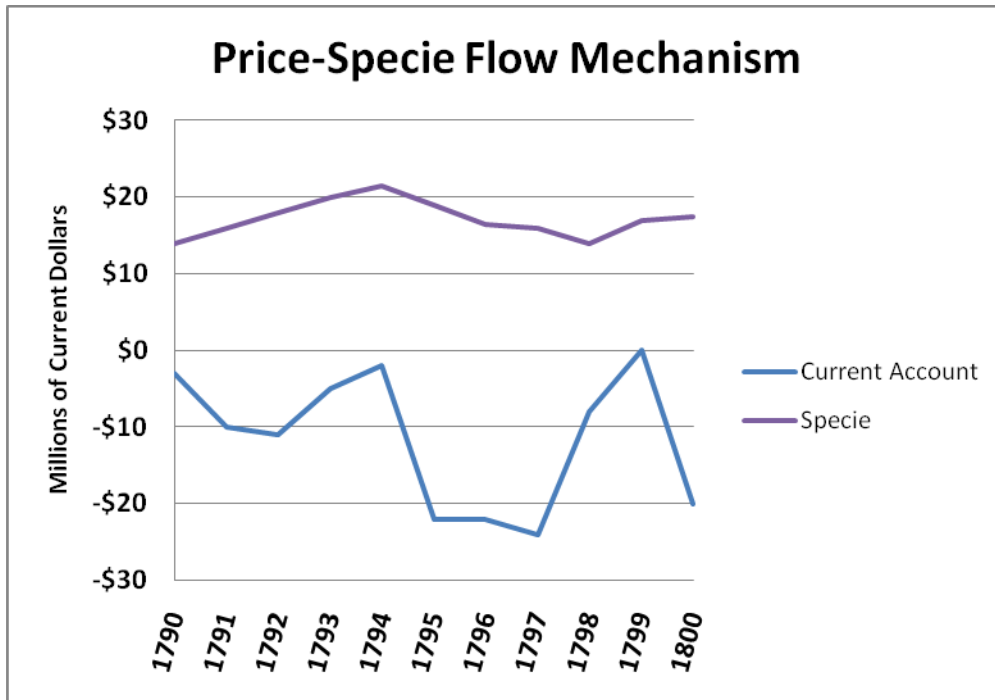


[Figure 7: US Specie Flows and Terms of Trade, 1790s]
 {Option 1: Specie and Terms of Trade}



Note: Terms of Trade Index is the ratio of Exports to Imports. When ToT = 100, exports = imports; when ToT is less than 100, imports exceed exports, indicating a net specie outflow; when ToT is greater than 100, exports exceed imports, indicating a specie inflow.

{Option 2: Specie and Current Account}



Source: Specie- Friedman and Schwartz (1968); Current Account- Irwin (2006)

Note: The current account consists of net US exports (exports minus imports).

Table 1: Banking Startups, 1790-1800

Year	Commercial Banks in operation	Bank Startups*	Bank Failures*	Total Authorized Bank Capital (Millions)
1790	3	1		\$3.10
1791	5	2		\$4.60
1792	12	13	4	\$6.31
1793	15	3		\$10.47
1794	15	0		\$10.47
1795	20	7	2	\$13.47
1796	22	2		\$14.17
1797	22	0		\$14.17
1798	22	0		\$14.17
1799	25	3		\$16.87
1800	28	3		\$17.42

Sources: Van Fenstermaker (1965). Numbers of active banks and bank capital based on Van Fenstermaker's own figures.

Data on bank failures come from Davis (1917) and Sobel (1988).

*Note: Startup and failure numbers include banks that were organized but never opened for business.

Table 2: Corporate Startups, Failure Rates, 1791-1796

Type	1791	1792	1793	1794	1795	1796	Total, '91-'96	Success	Failure	Failure Rate
Bank	2	13	3	0	7		25	16	5	20%
Toll Bridge & Turnpike	2	11	6	3	7	7	36	8	12	33%
Canal	3	11	5	na	na	na	19	10	9	47%
Manufacturing	2	3	1	4	0	1	11	1	9	82%
Totals	9	38	15	7	14	8	91	35	35	38%

Source: Davis (1917)

Table 3: Export and Import Data, 1790s

	US				
	Total	goods		Total	Surplus/
	Exports	exports	Reexports	Imports	Deficit
<i>1790</i>	20			23	-3
<i>1791</i>	19	19	1	29	-10
<i>1792</i>	21	19	2	32	-11
<i>1793</i>	26	24	2	31	-5
<i>1794</i>	33	27	7	35	-2
<i>1795</i>	48	40	8	70	-22
<i>1796</i>	59	32	26	81	-22
<i>1797</i>	51	24	27	75	-24
<i>1798</i>	61	28	33	69	-8
<i>1799</i>	79	33	46	79	0
<i>1800</i>	71	32	39	91	-20

All figures in millions of dollars.

Source: Irwin (2006)