





LIBRARY
OF THE
MASSACHUSETTS INSTITUTE
OF TECHNOLOGY

HD28
.M414
no. 249-
67

WORKING PAPER
ALFRED P. SLOAN SCHOOL OF MANAGEMENT

The Economic Consequences of the Bank War:
An Analysis of the Inflation of the 1830's

Peter Temin

249-67

March 1967

MASSACHUSETTS
INSTITUTE OF TECHNOLOGY
50 MEMORIAL DRIVE
CAMBRIDGE, MASSACHUSETTS 02139



The Economic Consequences of the Bank War:
An Analysis of the Inflation of the 1830's

Peter Temin

249-67

March 1967

ND29
.M414
No 249-57

The Economic Consequences of the Bank War*

Peter Temin

The 1830's represent a fascinating period in American history. They witnessed the emergence of the complex phenomenon known as Jacksonian democracy and the rise and collapse of one of the fastest inflationary movements of the nineteenth century. These two events normally are thought to have been causally connected, since one of the defining acts of Jacksonsonian democracy was the veto and destruction of the Second Bank of the United States: the celebrated Bank War. The demise of this bank is thought to have removed the only effective constraint on the state banks, leading to expansion and inflation.

The purpose of this essay is to take issue with this view and also with the views of several recent, unorthodox investigators. I will suggest instead that the inflation of the 1830's was the result of a fortuitous combination of events, none of which could have produced the price rise by itself, and most of which were not connected with the political acts of President Jackson. Together they maintained a tenuous balance for a few years, but the rapid

dissipation of this balance placed intolerable strains upon the existing monetary arrangements and led to the well-known panics of the late 1830's.

The paper is divided into four parts. In the first, the events to be explained are outlined and the inadequacies of previous explanations exposed. In the second and third, a new explanation is advanced and empirical evidence is mustered to document the theory. Finally, a concluding section comments on the historiography of the period.

I

The Second Bank of the United States was chartered in 1816 to alleviate the financial embarrassment that followed the demise of the First Bank of the United States in 1811 and the subsequent war with England. The Second Bank was the only bank chartered by the federal government, and it had two special functions in addition to its normal banking activities. It was the fiscal agent of the federal treasury, acquiring as a result the responsibility for a large volume of interregional transactions, and it was supposed to encourage the establishment of a uniform national currency to replace the chaotic issues of state-chartered banks. The

latter task was accomplished in two ways. The Second Bank issued its own notes, and it promptly returned the notes of state banks it received in payment of government obligations (or any other obligations) to the issuing banks for redemption in specie, i.e., in silver or gold. In the eyes of several historians, the Second Bank, by taking responsibility for the currency and acknowledging a responsibility to aid the economy in times of crisis, became a fledgling central bank, and its president, Nicholas Biddle a pioneer central banker.¹

For reasons that continue to be debated, President Jackson vetoed the bill renewing the Second Bank's twenty-year charter in 1832.² This was probably the decisive engagement of the Bank War, but the removal of the government deposits in 1833-34 from the Second Bank had more immediate impact. Midway through 1833, Jackson ordered the Secretary of the Treasury to initiate inquiries toward this end. After some problems obtaining a Secretary who would carry out the policy, public deposits were transferred from the Bank of the United States to a variety of state banks. Biddle's reaction to the loss of these deposits was

to restrict credit and accumulate reserves, a policy that lasted from the fall of 1833 into the summer of 1834. This policy in turn led to great stringency in the money market and to a recession of unknown magnitude, but to the extent that the Bank's policy was designed to convince the government of the Bank's value, it was a failure.³

In March, 1834, Biddle wrote to colleague that "the Executive, by removing the public revenues has relieved the Bank from all responsibility for the currency."⁴ Inflation, or so the traditional story goes, was the consequence.

The precise extent and duration of the inflation depends on the measure used. It will be represented here by the price index Smith and Cole derived using weights designed to show "the tone of business in the northeastern section of the country." This index drifted downward through the 1820's (with a small upward deviation from trend in 1825) to a trough in the summer of 1830. It then rose about 20 per cent in the next three years, peaking in the fourth quarter of 1833. As a result of Biddle's contraction, prices fell to a new trough in the second quarter of 1834 at a level only about 5 per cent above the trough in 1830. Prices

rose rapidly from this trough and reached a peak level 50 per cent above the 1834 trough during the first quarter of 1837. The fall from this peak was irregular: prices fell in 1837, rose in 1838, and fell in 1839 and succeeding years to a trough in the first quarter of 1843 about 20 per cent below the low point in either 1830 or 1834.⁵

One can view these data either as describing an inflation lasting from 1830 to 1837 with a temporary interruption in 1834 or as describing a combination of a mild inflation before 1833 followed by an independent sharper price rise from 1834 to 1837. The latter view is more common, but I shall tend toward the former in this essay--albeit with emphasis on the speed of the price rise after 1834.

The presumed link between the Bank War and the price rise can be seen in this representative quotation: "The decease of the Bank of the United States with its wholesome if unpopular habit of presenting notes of local banks for payment, released the last brake [on speculation]."⁶ The state banks are seen as anxious to expand their liabilities without increasing their reserves, but prevented from doing so by the restraining actions of the Second Bank which forced them to

keep a relatively high reserve ratio to redeem their notes. This constraint being removed, the banks indulged their desires, increasing their liabilities at the cost of lower reserve ratios. The resultant increase in the stock of money then led to the observed rise in prices.

This reasoning is simple and straightforward; there is no reason why this sequence of events could not have happened. If it had happened, however, the rise in prices would have been accompanied by a fall in the aggregate reserve ratio of the banking system, and no such fall took place between the Bank War and the start of 1837. The aggregate reserve ratio reached its low point for the period 1820-44 at the end of 1831 when it stood at 15 per cent, and it was between 16 and 18 per cent at the end of each year between 1832 and 1836 except for 1834 when it was higher.⁷ A decline in the reserve ratio--i.e., an increase in the stock of money due to unsupported bank expansion--cannot be used as an explanation for the price rise after 1834.

An alternative view of the inflation was presented by George Macesich in 1960. He argued that an exogenously determined capital inflow led to an excess supply of foreign

exchange, a fall in the exchange rate to the specie point, a resultant specie inflow, and an increase in the stock of money.⁸ (The last link in this chain was admittedly loose; short term changes in the banking structure and behavioral ratios reduced the short-run correspondence of specie flows and changes in the money stock.) This argument, like the traditional one, fails because of problems with an intermediate step. There was an inflow of both capital and specie, during the 1830's, but the connection between them was not as Macesich described. Only in one year during the inflation, 1834, did the exchange rate reach the specie point, and most of the specie inflow cannot be seen as a balancing item in the international accounts.⁹

Jeffrey Williamson, arguing against Macesich's views, proposed another explanation for the inflation. He said that a "long swing" expansion in domestic development led to excess demands for goods and real money balances and an excess supply of securities. As an excess demand for real balances would not normally lead to an inflation, Williamson suggested that "the flow of gold may have oversatisfied excess demands in the money market."¹⁰ If his mechanism is to explain the inflation,

Williamson needs to assert that the flow of gold did oversatisfy the demand for real balances, but this assertion has several problems. It implies that his model has a dynamic framework such that the economy is not always heading toward equilibrium. Without further specification of the model, it is hard to see how it could be tested. In addition, the model includes only gold movements in the relevant specie flows, while the inflow of silver in the 1830's was a more important cause of the inflation.¹¹ A satisfactory explanation for the price movement has yet to be given.

II

I would like to argue that the price movements of the 1830's may be seen as the result of two independent developments. On the one hand, there was the interaction of a slowly rising demand for real balances with a very rapid--and temporary--increase in the supply of nominal balances. On the other hand, there was a temporary rise in the British demand for American securities and cotton that permitted (and even helped to induce) prices in the United States to rise relative to those of its trading partners.

The demand for real balances may be seen as a function of interest rates, price changes, wealth, real income, and tastes.¹² The absence of data on tastes does not pose an insurmountable problem to the estimation of this function; we may assume that people did not change the total amount of money they wished to hold at given levels of the other variables, although the form in which they wished to hold this money may have been changed by the financial vicissitudes of the 1830's. The absence of data on wealth and income, on the other hand, is more serious.¹³ As there is a reasonable consensus that the path of income was not smooth in the 1830's and early 1840's, it would be foolhardy to estimate the demand for money on interest rates, price changes, and a time trend (serving as a proxy for wealth and income) alone.

A more indirect approach is indicated. The variables affecting the demand for money may be partitioned into secular and temporary influences. A regression of the money stock on a time trend then will show its dependence on long-run demand influences, and the errors from this regression will show the effects of transitory factors.

Since the supply of money was exogenously determined (as will be demonstrated below), ordinary least squares is an appropriate technique to use to partition the demand curve. We do not have enough data to perform a multiple correlation analysis, but a discussion of the errors from this simple regression will provide a reasonable, albeit imprecise, substitute.

A simple time trend rising at four per cent per annum explains 82 per cent of the variance of the real money stock from 1830 through 1844. The influence of other factors is shown in a Durbin-Watson statistic of 1.12, which does not allow us to reject (at a 5 per cent confidence level) the hypothesis of autocorrelation in the residuals.¹⁴ The stock of real balances was above its trend from late 1835 to late 1837, reaching a peak deviation of 14 per cent in late 1835. It was below its trend from late 1838 to late 1842, reaching a peak deviation of 11 per cent in late 1841.

Monetary theory predicts that the demand for money should

fall when interest rates rise, and rise when they fall, but there is no evidence that interest rates were lower in the mid-1830's than in the early 1840's. Nor is there any evidence of a negative relationship between these two variables in shorter intervals.¹⁵ Our theory also predicts that if price changes affect the demand for money, they will act to lower the demand in times of inflation. The rise in the demand for money during the inflationary years of the 1830's implies that this effect may be neglected. Changes in wealth probably were not large enough to be important, leaving income to be considered. The traditional story assumes that income rose in the mid-1830's and fell in the early 1840's, behaving much as the deviations of the demand for real balances from its trend. In the absence of further information, we may attribute the observed deviations of the demand for real balances from its trend to income movements, remembering that the deviations were small compared to the changes in the supply of money.

In fact, this comparatively stable demand for real balances was faced with an extraordinary increase in the supply of money starting in the early 1830's. The slow outward flow of specie that the United States had experienced in the 1820's was replaced about 1830 by a short-lived but rapid

inflow. The major cause of this reversal was a rise in the difference between the silver imported from Mexico and the silver exported to the Orient, but the inflow was swelled by specie balancing the capital inflow during the recession of 1834 and specie received in payment of a French indemnity in 1836. None of these flows can be viewed as the result of the price rise in the United States or of internal developments other than the Bank War, and the specie imports attributable to the Bank War amounted to only \$8 million out of total imports of \$40 million between 1830 and 1836.

Friedman and Schwartz have introduced a decomposition of the stock of money, showing how it can be viewed as a function of the stock of specie (or high-powered money), the reserve ratio of banks, and the proportion of money that is held by the public in the form of specie (as opposed to bank notes or deposits). If the assumption is made that these three magnitudes moved independently of one another, the influence of any one of them on the stock of money may be easily calculated. If the two ratios stay constant, the stock of money is strictly proportional to the

stock of specie, and the marginal effect of an added dollar of specie is given by the ratio of the existing stock of money to the existing stock of specie.¹⁶ As a result of the confidence in the banking system developed during the 1820's, the ratio of money to specie in the United States had risen to a level in the early 1830's that allowed specie flows to have powerful effects on the supply of money. The rise in the stock of money in the 1830's consequently followed directly from the specie imports of that decade.

The combination of a relatively stable demand for real balances and a rapidly rising supply of money led to a rise in prices. This rise in prices in turn led to a balance of payments deficit on current account. (The rapid rise in income in the 1830's, of course, acted in the same direction.) In the absence of compensating capital movements, foreign exchange would have become scarce, and its price would have risen. When it rose enough to offset the cost of shipping specie, specie would have been shipped abroad to cover the deficit, limiting the inflation the specie inflow could cause.

This limit was not effective in the 1830's due to a large rise in the capital exports from Britain to the United States in these years. The British exported capital in the 1820's to South America, but the countries of that region soon defaulted on their bonds, and the British turned toward North America. There was a lull in all British foreign lending in the late 1820's, and when British capital exports rose thereafter, capital imports to the United States rose with them. Measuring from 1827, a year of no British capital exports, to 1837, the capital imports to the United States amounted to about three-fifths of all capital exports from Britain.¹⁷

The shift in the direction of British capital exports could have come about either because of a change on the supply side--a shift in the behavior of British lenders-- or because of an increase in the American demand. It seems likely that changes took place on both sides of the market. In the United States, there was a demand for capital to build canals in imitation of the fabulously successful Erie Canal and, during the mid-1830's, to finance the import surplus resulting from the high internal prices. In Britain, there was an exportable surplus, a disillusionment with the direction

capital exports had taken in the 1820's, and admiration for the repayment of the United States government debt. In addition, the British demand for American cotton rose during the mid-1830's, and British investors were willing to supply capital to the cotton-growing states at the same time as their willingness to pay high prices for raw cotton reduced the impact of American price rises on the American balance of trade.¹⁸

The interest rate differential between British consols and Massachusetts or Boston bonds was approximately half a percentage point higher in the 1830's than in the 1820's, but this was the result of a long-term downward drift of British interest rates that continued irrespective of the flow of capital to the United States.¹⁹ In the absence of greater than usual price incentives for capital to flow to the United States, the causes of the large flow must have lain partly in England, in the availability of capital and in sanguine British expectations about the American future. For present purposes, it is sufficient to establish that there was an increase in the supply of capital available to the United States large enough to obviate a specie outflow

in payment for the import surplus of the 1830's. And as mentioned above, the high British demand for American cotton reduced the import surplus to be expected at any given price level and so induced an even greater inflation that might have resulted from the capital and specie flows alone. It therefore contributed to the speed of the inflation after 1834.

This increased supply of capital could not have produced the American inflation by itself, however. Had the United States imported capital without also retaining more of its Mexican silver imports, specie would have had to be imported from Europe to enable American prices to rise far enough to effect the necessary transfer of resources. The inflation came to an end in 1837 when the Bank of England took measures to restrain its loss of specie;²⁰ had the Bank of England lost specie earlier to the United States, it undoubtedly would have taken restrictive measures earlier, terminating the American inflation and import of capital. Consequently, it was the combination of an increased supply of specie and an increased supply of foreign capital that produced the rapid American inflation of the 1830's.

III

Not all parts of the preceding argument lend themselves to extensive documentation. The demand for real balances and the supply of foreign capital in particular are known only approximately, and the evidence pertaining to these functions has been presented in the course of the exposition. For the supply of money, on the other hand, the case is altogether different. It is possible to describe in detail the forces increasing this supply in the 1830's, showing that the increase in the supply of money was a cause, not a result, of the price rise in the United States. This demonstration supports the interpretation presented here at the same time as it documents the refutation of earlier hypotheses.

Data on the money stock in the United States are presented in the first column of Table 1. This series differs from previous ones in definition and in the dating used. Most investigators have followed the Treasury in reporting the monetary stock as of January 1 of each year. As the Treasury reports were submitted in the first week of January each year, however, it is obvious that the data refer to the stock near the end of the previous year, and they are labelled as

such in Table 1.²¹ The data on the stock of specie come from a different and less reliable source than the banking data. In all probability they are too low, since the implied proportion of money held in the form of specie by the public (the last column of Table 1) is unrealistically low in the early 1830's. On the other hand, the changes in this stock--as opposed to its level--agree tolerably well with the international flow of specie, and an adjustment of the level would leave the discussion essentially unchanged.

The money stock at the start of the 1830's was no larger than it had been during the 1820's and lower than it had been in the years just before 1830.²² It rose to a peak at the end of 1836, coincident with the peak in prices and just before the suspension of specie payments in May, 1837. The new trough in 1842 was at a higher level than the 1830 level, but the larger demand for real balances in the later years resulting from the intervening expansion of the economy caused prices to be lower.

The remaining columns of Table 1 show the three quantities isolated by Friedman and Schwartz as determinants of the stock (presented here as simple functions of the magnitudes

Table 1

The Money Stock and Its Decomposition

End of Year	Money	Specie	Reserve Ratio	Proportions of Money held as Specie
	(\$ million)	(\$ million)	(%)	(%)
1830	114	32	23	6
1831	155	30	15	5
1832	150	31	16	5
1833	168	41	18	8
1834	172	51	27	4
1835	246	65	18	10
1836	276	73	16	13
1837	232	88	20	23
1838	240	87	23	18
1839	215	83	20	23
1840	186	80	25	24
1841	174	80	23	30
1842	158	90	33	35
1843	194	100	35	26
1844	214	96	37	24

Sources: See Appendix.

Friedman and Schwartz used). The stock of specie had been falling slowly during the 1820's. This depressing effect on the money stock was offset by the expansionary effect of falls in the reserve ratio and the proportions of money held as specie, changes due to the increased confidence in the banking system supervised by the Second Bank. As discounts on bank notes of distant banks fell, people were willing to hold proportionately more bank notes and deposits, and banks were enabled to reduce their reserves.²³ By the start of the 1830's, therefore, a rise in the stock of specie by one dollar, *ceteris paribus*, would increase the stock of money by four or five dollars. (Of course, if the estimated stock of specie shown has been underestimated, this multiplier has been overestimated.)

Starting at the end of 1831, a new set of influences on the money stock appeared. The reserve ratio and the proportion of money held as specie stopped declining, remaining stationary or rising in the course of the inflation. The deviation of the 1834 data from this pattern can be related to the Bank War; but while it is easy to see why banks would have increased their reserve ratios during the contraction enforced upon them by the Second Bank, it is harder

to see why the public should have been willing to hold such a large proportion of their monetary assets as liabilities of these same beleaguered banks. It is likely that the reserve ratio shown for 1834 is too high and the proportion of money held as specie too low. In any case, the lack of a downward trend in the reserve ratio after 1831 shows that the Bank War did not produce the inflation by allowing banks to expand the money supply without attention to reserves.

The upward trend in the proportion of money held as specie began before the crisis of 1837. After that date, the rise in this ratio--as well as the rise in reserve ratios--can be understood as a reaction to the crisis, but the rise before then is problematical. Contemporary comments propose the hypothesis that it was due to a change in the price of gold in the United States. The United States was on a bimetallic standard, the price of gold being 15 times the price of silver before 1834. As the world (i.e., London) price of gold was higher than this relative to silver, the United States was on an effective silver standard. A law of 1834 decreased the amount of gold in a dollar, leaving the amount of silver

unchanged, thus changing the price of gold from 15 to 16 times the price of silver. This was slightly higher than the London price ratio, and the intent of the change was to attract gold to the United States and to encourage the use of metallic--as opposed to paper--currency.²⁴ Even if the assumption that people preferred gold to silver was sound, the presumption that the increased public holdings of specie in the 1830's were composed to gold would be incorrect. As gold was undervalued before 1834, there was little or no gold in the country at that time, and the imports of gold in the 1830's were not enough to have supplied the public with their increased holdings of specie.

Silver as well as gold was flowing into the country after 1834--despite its presumed undervaluation--and it is to the total inflow of specie that we must look. At the same time that the two ratios in Table 1 stopped their decline, the stock of specie--gold and silver--began a sharp ascent. The stock of specie in late 1836 was about \$40 million higher than it had been in 1831, a rise that easily explains the rise in the stock of money by about \$120 million in the same time.²⁵

Although changes in all three determinants affected year to year changes in the money stock, the changes in the stock of specie were the only ones that consistently and strongly acted to increase the stock of money.

Net imports of specie during the 1830's have been broken down according to the metal involved and the country of origin in Table 2. It is immediately obvious that most of the imports were of silver even after 1834 and that imports of specie from Europe were important only in 1834, 1836, and 1838. Discussions of gold flows or of balancing items in European trade therefore have only the capability to explain part of the flows.

To discover if any of the specie imports from Europe were balancing items, it is necessary to discover what the equilibrium exchange rate was. The relevant exchange rate is between pounds and dollars, specie being considered as a balancing item primarily in Anglo-American trade. As the price of silver was not officially fixed in England, par usually is assumed to have been determined by the gold content of the pound and the dollar.²⁶ But gold was undervalued in America relative to British before 1834, and gold was not shipped to the United States. Par as determined by the price

Table 2

Net Imports (-) of Gold and Silver Coin and Bullion by Country of Origin
 (\$ million)

Fiscal Year		England	France	Mexico	Asia	Other ^a	Total
1830	Gold						
	Silver			-5		-2	-7
1831	Gold						
	Silver	1	3	-5	1	-1	-1
1832	Gold						
	Silver	1		-4	2	-1	-2
1833	Gold						
	Silver			-5	1	-1	-5
1834	Gold	-2	-1				-3
	Silver	-4	-1	-7	1	-1	-12
1835	Gold	-1					-1
	Silver		1	-8	3	-2	-6
1836	Gold	-2	-5				-7
	Silver			-4	2		-2
1837	Gold	1	-1				
	Silver	1	1	-4	1	-4	-5
1838	Gold	-9	-2				-11
	Silver		1	-2	1	-3	-3
1839	Gold	1				1	2
	Silver		1	-2	2	-1	

^a primarily Latin America.

Sources: See Appendix

of gold consequently was not an equilibrium level.

There was a market for silver in London, and gold was worth about 15.7 times as much as silver on this market in the early 1830's.²⁷ Gold was worth only 15 times as much as silver in the United States, and the price of silver in terms of gold was about 5 per cent less in England than in the United States. Americans would import silver at an exchange rate 5 per cent above the rate at which they would ship gold because they could buy silver more cheaply than gold in England, and the exchange rate was prevented from falling to "gold par" by these shipments. The cost of shipping specie was about 2 or 3 per cent of its value,²⁸ and the shipment of silver was profitable when the exchange rate fell to about 2 or 3 per cent above gold par.

The act of 1834 raised the price of gold as of August 1, 1834, to 16 times the price of silver, making silver worth about 2 per cent more in England than in American relative to gold. This was not enough incentive to create an export of silver from the United States in return for an import of gold,

but it destroyed the incentive to import silver rather than gold when there was a choice. Gold par became relevant to discussions of American specie imports at this time, and the change in the equilibrium exchange rate (2 per cent) was far less than the change in the bimetallic ratio (7 per cent).²⁹

We do not have data on exchange rates; they have to be derived from the prices of bills of exchange. Bills of exchange were a credit instrument as well as a means of exchanging currency, and the price of a bill on London understates the exchange rate by the interest charge for the duration of the bill. Nevertheless, this price stayed above 2 per cent above gold par before 1834 and above 2 per cent below gold par during the remainder of the 1830's with the sole exception of 1834.³⁰ The low price of foreign exchange in 1834 encouraged the importation of specie, and we may attribute the \$8 million imported from Europe in this year to this profitable opportunity. Biddle's contraction, by decreasing the demand for imports and causing specie to be imported to balance the inflow of capital, had the paradoxical result of aiding the inflation temporarily halted by the contraction.³¹

The inflow of European gold in 1836 was not the result of an excess supply of foreign exchange. Most of this import was in payment of a French indemnity for damage done to Americans during the Napoleonic Wars under a treaty signed July 4, 1831. The delay in payment resulted from the failure of the French legislature to appropriate the necessary money and caused some bitterness between the Second Bank (which was to collect the indemnity) and the Jackson administration; the timing of this inflow clearly was independent of the American inflation.³²

But while gold was imported during the inflation as a balancing item in 1834 and as payment for an indemnity in 1836, the major imports of specie were of silver. It can be seen from Table 2 that almost all the silver imports came from Mexico and that they were partially offset by a small but persistent flow of silver to Asia, primarily to China.³³ In the 1820's the outflow of silver to Asia balanced the inflow of silver from Mexico, nullifying any inflationary effects of the imports. This balance was destroyed in the 1830's by a small rise in imports from Mexico and a larger fall in the exports to China.

Silver was a commodity export for Mexico, and the increase in its quantity during the mid-1830's was probably due to an increase in supply. The price of silver was fixed in terms of American currency, and the inflation reduced the quantity of goods bought by a unit of silver. Consequently, the added imports from Mexico were not produced by offers of higher prices for them.

The decline in exports of silver to China and Asia was large enough to make the annual amount of silver retained from the Mexican imports rise from zero in the late 1820's to about \$4 million in the 1830's, contributing about \$20 million of silver to the American stock of specie between 1831 and 1836.³⁴ The Chinese were increasing their consumption of opium in the 1830's, and they abandoned their traditional desire for silver in favor of a demand for bills on London to buy opium from British India. The Second Bank facilitated this change by introducing long-dated bills of exchange (the China or India bills) especially for the Eastern trade.³⁵ It would not be too misleading to say that the Opium War was more closely connected to the American inflation than the Bank War between Jackson and Biddle.

IV

It has been natural to see the events of the years following the Bank War as a test of Jackson's policies toward the Second Bank of the United States. Although commendation of Jackson for his actions would be inappropriate here, it nevertheless must be admitted that the test is not quite fair. There were economic vicissitudes after the destruction of the Second Bank, but do we want to say, "Post hoc, ergo propter hoc"? Historians have not been noteworthy for their attempts to reconstruct the causal connection between the Bank War and the inflation, relying explicitly or implicitly on the presumed effects of the former on the money supply. When this supply is examined, however, a completely different picture emerges.

The money supply rose for a variety of reasons, and most of them were not connected with Jackson. The introduction of opium into China, the payment of the French indemnity, and the increase in the output of Mexican mines, all helped to increase the supply of money independently of Jackson. In addition, the responsiveness of the supply of money to specie

imports derived from the high ratio of money to specie permitted by the banking system established before Jackson's election. Only the specie inflow in 1834 caused by the recession of that year can be connected unambiguously to Jacksonian politics.

This rise in the supply of money led to a rise in prices because it was faced with a comparatively stable demand for real balances and a rise in the supply of foreign capital available to the United States. The British willingness to lend in the United States in the 1830's was substantially independent of American politics, although to the extent it was a reaction of the retirement of the public debt it owed something to the American tariff policies. Similarly, the stable demand for real balances is hard to link with politics. Taking everything into consideration, Jackson must be given a small part in creating the inflation of the 1830's.

It is a separate question, of course, whether Jackson's new policies in 1836 brought this inflation to its spectacular close. But the inflation was produced by the conjunction of several forces, and it is doubtful whether they could have been kept in balance by any institutional framework available in the 1830's. To the extent that the crisis of

1837 and the subsequent deflation resulted from the disharmony of forces only tenuously and briefly connected, they too cannot be used as impartial tests of Jacksonian policies.

APPENDIX ON DATA

1. Table 1:

Data on state banks for 1830-34 were taken from Van Fenstermaker, pp. 66-68, expanded to allow for his partial sample by dividing his totals by the proportion of banks reported. Data on state banks for 1835-44 were taken from U.S. Congress, House Document 111, 26th Congress, 2nd Session (1841), p. 1455, and U.S. Congress, House Document 68, 31st Congress, 1st Session (1850), pp. 422-25, redated back one year to show more accurately the time in which they were collected. Data on the Second Bank of the United States were taken from House Document 111, p. 1419, redated with the other Treasury data. (Van Fenstermaker's data on the Second Bank could not be used as they show the volume of notes issued, which is about twice as large as the volume of notes actually in circulation.) The stock of specie in the United States was taken from the 1896 Report of the U.S. Comptroller of the Currency, Vol. I, p. 544, redated with the other Treasury data.

Net banks obligations were defined to be notes in circulation plus deposits plus the amount due other banks less notes of other banks held less the amount due from other banks. The money supply then equaled net bank obligations plus specie outside banks. (Specie funds were not counted in this computation or in the computation of reserve ratios.) The federal and state governments are included among the public in this definition. The stock of money reported by Macesich, pp. 430-31, is smaller than this one by the amount due other banks plus the federal government's deposits and specie holdings. The amount due other banks has to be included to balance the amount due from other banks, as together they show the volume of interbank borrowing. The federal government is included with the public because there is little reason not to. It could not create money as it can now, and there is little reason for treating it differently than state governments.

The reserve ratio is the ratio of specie in banks to net bank obligations. The proportion of money held as specie is the ratio of specie not in banks to money.

2. Table 2:

The data in Table 2 refer only to imports and foreign exports of gold and silver coin and bullion, almost all of the flows reported being coin (labelled specie in the original sources). They differ from the specie flows shown in Historical Statistics of the United States (1960), p. 538, by their omission of domestic exports of gold and silver coin, labelled "manufactures of gold and silver coin" in 1831-37. Manufactures of gold and silver are commodity exports, although they can use monetary gold and silver as raw material. The total quantity of these exports in 1831-37 was \$7 million, which undoubtedly was more than offset by domestic mining of gold and silver. The data come from the annual Reports on Commerce and Navigation, which can be found most easily from the following table:

<u>Fiscal Year</u>	<u>Congress</u>	<u>Session</u>	<u>House Document</u>
1830	21	2	140
1831	22	1	230
1832	22	2	109
1833	23	1	355
1834	23	2	187
1835	24	1	258
1836	24	2	188
1837	25	2	372
1838	25	3	253
1839	26	1	251

Footnotes

- * The research for this paper was supported by a grant from the National Science Foundation, whose aid is gratefully acknowledged.
1. Ralph C. H. Catterall, The Second Bank of the United States (Chicago: University of Chicago Press, 1902); Fritz Redlich, The Molding of American Banking: Men and Ideas (New York: Hafner Publishing Company, 1951); Walter Buckingham Smith, Economic Aspects of the Second Bank of the United States (Cambridge: Harvard University Press, 1953); Bray Hammond, Banks and Politics in America, from the Revolution to the Civil War (Princeton: Princeton University Press, 1957).
 2. For the flavor of the debate see Arthur M. Schlesinger, Jr., The Age of Jackson (Boston: Little, Brown, 1945), The refutation of his position by Hammond, especially p. 364, and the refutation of Hammond's position by Frank Otto Gatell, "Sober Second Thoughts on Van Buren, the Albany Regency, and the Wall Street Conspiracy," Journal of American History, LIII (June 1966), pp. 19-40.
 3. Jacob P. Meerman, "The Climax of the Bank War: Biddle's Contraction, 1833-34," Journal of Political Economy, LXXI

- (August 1963), pp. 378-88; Nicholas Biddle, Correspondence (Boston: Houghton Mifflin, 1919), pp. 219-20.
4. Ibid., pp. 225-26.
 5. Walter Buckingham Smith and Arthur Harrison Cole, Fluctuations in American Business, 1790-1860 (Cambridge: Harvard University Press, 1935), pp. 157-58.
 6. Samuel Eliot Morison and Henry Steele Commager, The Growth of the American Republic (5th edition; New York: Oxford University Press, 1962), p. 486. See also Nathan Appleton, Remarks on Currency and Banking (Boston, 1841), p. 50; Edward G. Bourne, History of the Surplus Revenue of 1837 (New York, 1885), p. 15; J. R. T. Hughes and Nathan Rosenberg, "The United States Business Cycle Before 1860: Some Problems of Interpretation," Economic History Review, Second Series, XV (1963), pp. 476-93.
 7. See Table 1 below.
 8. George Macesich, "Sources of Monetary Disturbances in the U.S., 1834-1845," Journal of Economic History, XX (September 1960), pp. 407-34, especially 413, 418.
 9. See the discussion of Table 2 below.

10. Jeffrey G. Williamson, "International Trade and United States Economic Development: 1827-1843," Journal of Economic History, XXI (September 1961), 372-83. (His emphasis.)
11. See Table 2 below.
12. Milton Friedman (ed.), Studies in the Quantity Theory of Money (Chicago: University of Chicago Press, 1956), Chapter 1.
13. Professor Gallman has constructed interpolations between his estimates of GNP for benchmark years, but these data start only in 1834, and Gallman has cautioned against their use as indicators of annual movements. They are based primarily on a few raw-material series (e.g., wheat, corn, raw cotton and wool, lumber), and they do not show changes in the commercial and industrial sectors. See Robert E. Gallman, "Gross National Product in the United States, 1834-1909," in Output, Employment, and Productivity in the United States after 1800, Studies in Income and Wealth, Volume 30 (New York: Columbia University Press for the National Bureau of Economic Research, 1966), p. 71.

14. The monetary data in Table 1 were deflated by December prices from Smith and Cole, p. 158. The logarithm of the real money supply was then regressed on time.
15. Experiments with various specifications of the relationship between the inadequate data occasionally yielded a positive coefficient for the (short-term) interest rate, but never a negative one. See Smith and Cole, pp. 192-93, for short-term rates, and Sidney Homer, A History of Interest Rates (New Brunswick, New Jersey: Rutgers University Press, 1963), pp. 286-87, for long-term rates.
16. Milton Friedman and Anna Jacobson Schwartz, A Monetary History of the United States, 1867-1960 (Princeton: Princeton University Press, 1963), pp. 784-89.
17. Leland H. Jenks, The Migration of British Capital to 1875 (New York: Alfred A. Knopf, 1927), Chapters 2-3; Albert H. Imlah, Economic Elements in the Pax Britannica (Cambridge: Harvard University Press, 1958), pp. 70-71; Douglass C. North, "The United States Balance of Payments, 1790-1860," in Trends in the American Economy in the Nineteenth Century, Studies in Income and Wealth, Volume 24 (Princeton: Princeton University Press for the National Bureau of Economic Research, 1960), p. 621.

18. William Graham Sumner, A History of Banking in the United States (New York, 1896), pp. 258-59; Peter Temin, "The Causes of Cotton-Price Fluctuations in the 1830's," paper delivered at the meetings of the Econometric Society, San Francisco, December 28, 1966.
19. Homer, pp. 195-96, 286-87.
20. Ralph W. Hidy, The House of Baring in American Trade and Finance (Cambridge: Harvard University Press, 1949), pp. 205-07; R. C. O. Matthews, A Study in Trade-Cycle History: Economic Fluctuations in Great Britain, 1833-1842 (Cambridge England: At the University Press, 1954), pp. 57-58.
21. Van Fenstermaker also uses this convention. J. Van Fenstermaker, The Development of American Commercial Banking, 1782-1837 (Kent, Ohio: Kent State University, 1965). For more detailed comments on the data, see the Appendix on Data.
22. Banking data for the 1820's were taken from the same sources as the data in Table 1. The specie stock was extrapolated back from the 1830 stock on the basis of international flows. U.S. Bureau of the Census, Historical Statistics of the United States, Colonial Times to 1957 (Washington, D. C., 1960), p. 538.

23. For the course of bank-note discounts, see Van Fenstermaker, pp. 77-95.
24. J. Lawrence Laughlin, The History of Bimetallism in The United States (4th ed., New York, 1897), p. 63; Arthur Nussbaum, A History of the Dollar (New York: Columbia University Press, 1957), p. 77; Smith, p. 58.
25. If the "specie multiplier" was 4 or 5, the rise in specie "overexplains" the rise in the stock of money, being offset by the fall in the proportion of money held as specie. If the stock of specie has been overestimated, the influences offsetting the effects of a rise in the specie were less than appears in Table 1, and the movement of the stock of specie can be considered more in isolation.
26. Lance E. Davis and Jonathan R. T. Hughes, "A Dollar Sterling Exchange 1803-1895," Economic History Review, Second Series, XIII (August 1960), pp. 52-78; Frank Whitson Fetter, Development of British Monetary Orthodoxy, 1797-1875 (Cambridge: Harvard University Press, 1965), pp. 64-67.

27. Laughlin, pp. 61, 288-91.
28. Margaret G. Myers, The New York Money Market (2 vols.; New York: Columbia University Press, 1931), I, 74-75; Macesich, p. 416n.
29. The price of gold in New York rose less than 3%. Jonathan Elliot, The Funding System of the United States and Great Britain (Washington, 1845; Printed also as U.S. Congress, House Document 15, 28th Congress, 1st Session), pp. 1103-47.
30. Smith and Cole, p. 190. Smith and Sole's data are in terms of nominal par, which was fixed by the government independent of gold or silver par. Gold par was 2.7% above nominal par through 1834; 9.5% above thereafter. Davis and Hughes present data corrected for the difference between nominal and gold par, and after 1835 for the interest charge also. Unhappily, their data for 1834 are incomplete.
31. Meerman asserted that the specie inflow of 1834 was not due to the contraction, but he did not examine the relevant exchange rates. See also Catterall, p. 324.

32. Jonathan Elliot, The American Diplomatic Code (2 volumes; Washington, D. C., 1834), I, 524-28; Sumner, p. 215; Smith, p. 184. The French indemnity was about \$5 million.
33. The inflow from Mexico was almost entirely in the form of coin, Mexican coins being legal tender in the United States. See Nussbaum, pp. 56, 62, 84; Sources for Table 2.
34. Data for the late 1820's from the same source as Table 2 for earlier years. Silver imports from other Latin American countries provided additional supplies on a lesser scale than the Mexican production.
35. Samuel Eliot Morison, The Maritime History of Massachusetts, 1783-1860 (Boston: Houghton Mifflin (Sentry Edition), 1961), p. 277; Smith, pp. 34, 89.

BASIS

Date Due

AUG 15 '77

~~SEP 15 '78~~

APR 26 '83

SEP 13 '83

Lib-26-67

MIT LIBRARIES



3 9080 003 901 474

244-67

MIT LIBRARIES



3 9080 003 901 409

245-67

MIT LIBRARIES



3 9080 003 901 433

246-67

HD28

.M414

Nos. 2 -

Nos. 253-6

MIT LIBRARIES



3 9080 003 901 326

247-67

MIT LIBRARIES



3 9080 003 901 391

248-67

MIT LIBRARIES



3 9080 003 870 471

249-67

MIT LIBRARIES



3 9080 003 870 356

250-67

MIT LIBRARIES



3 9080 003 901 383

251-67

MIT LIBRARIES



3 9080 003 901 367

252-67

MIT LIBRARIES



3 9080 003 870 398

253-67

