

Federal Reserve Bank of Minneapolis
Research Department Working Paper

SUSPENSION AND THE FINANCING
OF THE CIVIL WAR:
A CRITIQUE OF NEWCOMB AND MITCHELL

Arthur J. Rolnick and Neil Wallace

Working Paper 265
PACS File 5225

Revised June 1985

The views expressed herein are those of the authors and not necessarily those of the Federal Reserve Bank of Minneapolis or the Federal Reserve System. The material contained is of a preliminary nature, is circulated to stimulate discussion, and is not to be quoted without permission of the authors.

Studies by, among others, Simon Newcomb (1865) and Wesley Clair Mitchell (1903) concluded that the financial measures adopted by the U.S. government (the North) to finance its Civil War deficits were costly. In particular, Newcomb and Mitchell claimed that the country would have ended the war with less accumulated debt--debt eventually redeemed in specie at the prewar parity--had it financed those deficits while remaining on the specie standard. The actual financial measures adopted, which we and others label "suspension," included issuing inconvertible notes called greenbacks and making them legal tender for new and existing debt obligations.^{1/} Although the Newcomb and Mitchell conclusion is less widely accepted today than it was when Mitchell wrote, so far as we know, there has not appeared an explicit critique of the way Newcomb and Mitchell estimated the costs of suspension.^{2/} This paper provides such a critique and finds that skepticism about their conclusion is warranted; our analysis suggests that they may have substantially overestimated some of the costs of suspension.

We begin, in Section I, by providing an accounting framework relevant for contrasting the financing of a deficit with and without suspension. The framework shows that the relative amount of accumulated debt with and without suspension depends primarily on two comparisons: one is between the prices actually paid for government purchases and the prices that would have been paid absent suspension; the other is between the interest rates at which the government actually borrowed and the interest rates at

which it would have borrowed absent suspension. Before we describe how Newcomb and Mitchell made these comparisons, we present in Section II an alternative analysis according to which suspension amounts to an insignificant change in the unit of account which does not imply any difference in relative prices or in real interest rates and, hence, which does not imply any difference in accumulated debt. Although this view of suspension, which we label irrelevancy, is extreme, it provides a useful null hypothesis against which to compare and judge the Newcomb and Mitchell analyses. We present and criticize Newcomb's work in Section III and Mitchell's in Section IV. We show that their conclusions depend entirely on unsupported estimates of what gold interest rates would have been absent suspension, estimates substantially lower than realized gold interest rates under suspension. We conclude the paper, in Section V, by noting that the actual course of realized gold interest rates before and after suspension does not seem to support the Newcomb and Mitchell conclusions.

I. Comparing Accumulated Debt

Although both Newcomb and Mitchell argued that there should have been heavier taxation to finance the Civil War, both were also willing to take as given the structure of taxation and the real expenditure requirements of the government and to indict suspension on the ground that more debt had to be issued under suspension to finance the same real deficit. Their calculations of extra indebtedness under suspension proceeded under the assumption of a given real primary or net-of-interest deficit.

To see what is implied by the condition that the same real primary deficit is financed, we begin by displaying versions of the government's cash-flow constraint under suspension and absent suspension, respectively.

$$(1) \quad P_t(G_t - T_t) = v_t(B_t - B_{t-1}) + (M_t - M_{t-1}) - c_t B_{t-1}$$

$$(2) \quad P_t^*(G_t^* - T_t^*) = v_t^*(B_t^* - B_{t-1}^*) - c_t^* B_{t-1}^*$$

Here

$P_t(P_t^*)$ = time t price of government purchases

$G_t - T_t (G_t^* - T_t^*)$ = time t real primary deficit

$v_t(v_t^*)$ = time t price of government bonds per dollar of face value

$B_t(B_t^*)$ = time t face value of the stock of government bonds

M_t = time t stock of greenbacks

$c_t(c_t^*)$ = time t average coupon rate on government bonds

The nominal quantities and prices in (1) are actual greenback quantities and prices while those in (2) are hypothetical quantities and prices in gold, hypothetical in that they denote what would have happened absent suspension. If we equate the real primary deficits in (1) and (2), we get

$$(3) \quad (v_t^* \Delta B_t^* - c_t^* B_{t-1}^*) / P_t^* = (v_t \Delta B_t + \Delta M_t - c_t B_{t-1}) / P_t$$

where Δ denotes first difference ($\Delta x_t \equiv x_t - x_{t-1}$). The right-hand side of (3) involves actual and, hence, known prices and quanti-

ties under suspension. The terms v_t^* and c_t^* describe and are described by what gold interest rates would have been absent suspension while p_t^* describes what prices would have been. Thus, given estimates of what gold interest rates and prices would have been absent suspension, equation (3) can be used to deduce estimates of the time path of debt absent suspension, the time path of B_t^* . Newcomb's and Mitchell's goal was to compare such estimates to the time path of actual accumulated debt under suspension, the time path of $B_t + M_t$.

In order to facilitate making the comparison, we solve (3) for the first difference of $D_t \equiv B_t + M_t$ minus the first difference of $D_t^* \equiv B_t^*$. To do this, we subtract $\Delta B_t^*(v_t/p_t)$ from both sides of (3) and rearrange to get

$$(4) \quad \Delta D_t - \Delta D_t^* = \Delta D_t^* [(v_t^*/v_t)(p_t/p_t^*) - 1] - \Delta M_t(1-v_t)/v_t \\ - c_t^* B_{t-1}^* p_t / (v_t p_t^*) + c_t B_{t-1} / v_t$$

Finally, we take into account that coupons under suspension were paid in gold and equate coupon rates by imposing $c_t = e_t c_t^*$, where e_t is the time t price of gold in terms of greenbacks under suspension. This permits us to rewrite (4) as

$$(5) \quad \Delta D_t - \Delta D_t^* = \Delta D_t^* [(v_t^*/v_t)(p_t/p_t^*) - 1] - \Delta M_t(1-v_t)/v_t \\ - c_t^*(e_t/v_t) [D_{t-1}^*(p_t/p_t^* e_t) - D_{t-1}] - c_t^*(e_t/v_t) M_{t-1}$$

The term in D_{t-1}^* and D_{t-1} represents the time t contribution of differences in coupon payments stemming from differ-

ences in inherited debt. The terms in M_{t-1} and ΔM_t take into account that under suspension part of the debt was in greenbacks which bore no nominal interest. The first term represents the effect on time t additions to indebtedness of time t differences in nominal interest rates, (v_t^*/v_t) , and of time t differences in prices, (p_t/p_t^*) . We will be relating different conclusions about the time paths of D_t and D_t^* to different underlying estimates or hypotheses about the relationship between p_t and p_t^* , the relationship between v_t and v_t^* , and the contribution of zero nominal interest debt under suspension.

II. Possible Irrelevancy of Suspension

As noted above, the irrelevancy view ascribes no significance at all to suspension and, in particular, denies that it affects accumulated debt. In other words, an implication of irrelevancy is $\Delta D_t^* = \Delta D_t$. This implication follows from three hypotheses that are part of the irrelevancy view. First, concerning prices, the irrelevancy hypothesis is $p_t^* = p_t/e_t$, where, recall, e_t is the price of gold in terms greenbacks under suspension. Second, concerning bond prices, the irrelevancy hypothesis is $v_t^* = v_t/e_t$. Finally, concerning the contribution of zero nominal interest debt under suspension, the irrelevancy hypothesis is that something equivalent could have been done absent suspension. We discuss each hypothesis in turn, focusing most of our attention on the second, which claims that long-term gold interest rates absent suspension would have been equal to long-term realized gold interest rates under suspension.

The hypothesis $p_t^* = p_t/e_t$, which says that gold prices of government purchases are the same with and without suspension, is an implication of the familiar hypothesis that a change in the unit of account leaves all real demands and supplies, and, hence, relative prices of goods and services unaffected. Greenbacks, under the irrelevancy view, simply replace gold as the unit of account and all relative prices are unchanged including the relative prices between gold and other objects.

The hypothesis $v_t^* = v_t/e_t$, that the gold price of a gold security without suspension equals the gold price of a greenback security with suspension, requires more explanation. First of all, it involves the hypothesis that the perceived payoff distributions in gold on government securities are the same with and without suspension. Given that hypothesis, the equality for security prices follows from the hypothesis that securities with the same payoff distributions in gold have the same gold price with and without suspension, a special case of the previous claim about relative prices.

Invariance of the payoff distribution on government securities is a hypothesis about people's views concerning the government's ability and willingness to pay its debts. Under this hypothesis, people viewed greenbacks and greenback-denominated securities as risky titles to gold at the prewar parity not because of suspension itself but because of other underlying uncertainties, perhaps, mainly connected with the war--how long and costly it would be and how it would turn out.^{3/} According to this

hypothesis, these same uncertainties would have made gold securities under the gold standard equally risky. In particular, the hypothesis is that it was people's view that in circumstances in which gold promises would have been redeemed as promised under the gold standard, greenbacks would be redeemed at the prewar parity; and that in circumstances under which there would have been renegeing on gold promises under the gold standard, there would be renegeing on the implicit greenback promise and to the same extent.^{4/} Given such invariance of payoff distributions, the conclusion for security prices, $v_t^* = v_t/e_t$, is, as noted above, a consequence of the earlier hypothesis that relative prices are unaffected by a change in the unit of account.

That conclusion about security prices can, of course, be expressed as a conclusion about gold interest rates absent suspension. The conclusion is that gold interest rates absent suspension would have been the same as realized gold interest rates under suspension. The actual realized gold yield on 6 percent bonds due in 1881 is shown in Chart 1 and Table 1, where it is labelled "gold yield." According to the irrelevancy view, the Chart 1 gold yield is the yield or internal rate of return that the government would have faced had it remained on the gold standard and had it followed the same fiscal policy as it did under suspension.

Finally, we turn to the irrelevancy view of the role of greenbacks as currency. Under suspension, about 1/4 of the accumulated debt was in the form of zero-coupon greenbacks, which,

of course, bore a lower realized gold interest rate than the rest. Irrelevancy requires that the government could also have had that much of its debt bear such a lower interest rate absent suspension or that it could have done something equivalent.

Had the gold standard been maintained, the kind of security comparable to a greenback in payoff distribution would have been a long-term, small-denomination, pure discount, bearer bond--for example, a title to \$1 worth of gold at some date well into the future. If such securities in amount equal to about 1/4 of the total debt could have been sold at a price implying a yield sufficiently lower than that on other government securities, then their issue would duplicate the budgetary implications of the issue of greenbacks under suspension.

It seems doubtful, however, that such securities could have sold at such a low yield. Presumably, in order for them to have sold at such a low yield, they would have had to serve as currency. Yet, according to the irrelevancy hypothesis concerning promised gold payoffs, such securities absent suspension would have been perceived to be risky and, therefore, would have sold at a discount, a discount which would have responded to news about the war and other such matters. Such a floating price in terms of the gold unit of account would probably have limited their role as currency.^{5/}

Other policies under the gold standard could conceivably have allowed the government to get command of the revenue implied by greenback issue under suspension. One possibility, which

Newcomb seemed to advocate, was a government monopoly of the bank-note business. At the start of the war, the note issue business was in the hands of state-chartered banks. Newcomb questioned why banks should get the profits of note issue and suggested that the profits should instead go to the government. Although Newcomb's view about the profits accruing to state banks is difficult to reconcile with what seemed to be free entry into state banking, it is plausible that a government monopoly on the kind of intermediation that state banks were engaged in could potentially generate some profits.^{6/} For irrelevancy to hold, such profits would have to be equivalent to being able to place 1/4 of the debt in noninterest-bearing form.

This completes our description of the three components of the null hypothesis that suspension was irrelevant. We have described this view in order to help us interpret and criticize the Newcomb and Mitchell estimates of the costs of suspension. As we will see, neither Newcomb nor Mitchell subscribed fully to any of the components of the irrelevancy view. With respect to relative price levels and with respect to the role of greenbacks as currency, both arrived at estimates that by themselves imply lower accumulated debt under suspension. It is with respect to relative prices of securities that both adopted estimates that imply higher accumulated debt under suspension, higher by enough to more than overcome the consequences of their estimates concerning relative price levels and the role of greenbacks as currency.

III. Newcomb's Estimate of the Cost of Suspension

Newcomb estimated the extra indebtedness due to suspension by working with the following abbreviated version of equation (5),

$$(6) \quad \Delta D_t - \Delta D_t^* = \Delta D_t^* \left[\left(\frac{v_t^*}{v_t} \right) \left(\frac{p_t}{p_t^*} \right) - 1 \right].$$

For each three-month period during 1862-1864, Newcomb presented estimates of ΔD_t^* (which he took to be constant at \$150 million) and of v_t^*/v_t and p_t^*/p_t , which we reproduce in columns 2 and 3 of Table 2. He used these to compute the right-hand side of equation (6). When summed, these give his estimate of \$180 million of extra indebtedness due to suspension.^{7/}

In column 1 of Table 2, we show the price of a greenback dollar in terms of gold ($1/e_t$), which permits us to compare Newcomb's view to the irrelevancy view. Recall that according to irrelevancy, $1/e_t$ is equal to v_t^*/v_t and to p_t^*/p_t . As Table 2 shows, Newcomb's estimates of p_t^*/p_t , which generally exceed $1/e_t$, favor suspension. He explained these by saying that "there are many payments such as salaries and gold debts, for which paper has, up to the present, been nearly good as coin" (1865, page 170). His estimates of v_t^*/v_t for the first three quarters of 1862, which are less than $1/e_t$, also favor suspension. He explained these by saying that initially the government borrowed at lower effective gold interest rates than they would have had to pay had they not suspended because they issued greenbacks rather than interest-bearing debt. We interpret this as Newcomb's way of

compensating for the terms in equation (5) that are left out of his formulation, equation (6). His estimates of v_t^*/v_t for the rest of the period exceed $1/e_t$ and are responsible for his indictment of suspension as a financing device. In terms of yields, Newcomb was asserting that absent suspension yields on gold bonds would have been those labelled "Newcomb yields" in Chart 1 and Table 1.^{8/}

Readers should be skeptical of Newcomb's estimates because he does not describe how he arrived at these numbers. So far as we can tell he only offered the following qualitative argument in defense of his estimates of v_t^*/v_t for 1863-4:

- . . . the two great depressing causes which have diminished the value of all government securities would not have existed [absent suspension]. These causes are:
1. The suspension of specie payments, thereby establishing the principle that if it were not convenient to pay a debt when due, payment might be indefinitely deferred; and the passage of the act declaring irredeemable paper money a legal tender for the entire principal of the public debt.
 2. The depreciation of the currency, causing enormous profits to accrue from commercial and speculative ventures, thus discouraging investment in securities which only pay reasonable dividends. (p. 168)

While the first part of this argument is plausible, the argument says nothing about how much lower interest rates would have been absent suspension. With no other explanation for how he derived his estimates, it is hard to take seriously Newcomb's claim about the costliness of suspension.

IV. Mitchell's Estimate of the Cost of Suspension

Mitchell (1903, chapter 10; 1897) estimated the extra indebtedness due to suspension by simply cumulating the excess of the deficit in greenback dollars over what he estimated the deficit would have been in gold dollars absent suspension (while assuming that real expenditures and the tax structure would have been the same) and then subtracting an allowance for greenbacks being noninterest-bearing. The result was an estimate of about \$589 million of extra indebtedness due to suspension. To quote Mitchell,

The public debt reached its maximum amount August 31, 1865, when it stood at \$2,846,000,000. Of this immense debt the preceding estimates indicate that some \$589,000,000, or rather more than a fifth of the whole amount, was due to the substitution of the United States note for metallic money. (1903, p. 419)

Setting aside Mitchell's allowance for greenbacks being noninterest-bearing--an allowance which was \$28 million and which he arrived at by multiplying \$450 million, approximately the stock of greenbacks, by 6 percent, approximately the nominal greenback interest rate--Mitchell's procedure ignores any possible difference between market values of debt and face values and, in particular, ignores any possible difference between gold interest rates absent suspension and actual nominal greenback interest rates. In terms of equations (1) and (2), Mitchell estimated the left-hand side of equation (2), subtracted it from the left-hand side of (1) and identified the difference as an estimate of $(B_t - B_{t-1}) + (M_t -$

$M_{t-1}) - (B_t^* - B_{t-1}^*)$ or as an estimate of $\Delta D_t - \Delta D_t^*$.^{9/} If we ignore the terms involving coupon payments on accumulated debt in equations (1) and (2), we see from those equations that such an identification is valid if and only if $v_t^* = v_t = 1$, or if and only if (a) 6 percent coupon bonds could have been sold at par absent suspension and (b) greenback bonds sold at par. While the second of these held approximately, the first is an arbitrary and extreme hypothesis.

Mitchell did not explicitly acknowledge and certainly nowhere defended the assumption that gold interest rates would have been constant at 6 percent absent suspension. Our guess is that Mitchell was simply confused about his procedure and did not realize that he was implicitly making this assumption. We say that in part because doing that amounts to asserting that the events which caused the greenback-gold exchange rate to fluctuate sharply would not have impinged on gold interest rates absent suspension (see Chart 1). Yet, according to Mitchell, the exchange rate was explained mainly by news about the war and about fiscal policy. We find it hard to believe that he would have argued that those events would not also have affected the yields on government securities had the government stayed on the gold standard. In fact, when discussing the options the government faced when it formally suspended he seemed to accept that they would. Mitchell said, "The real question is, was the making of United States notes a legal tender preferable to selling bonds at a discount? (1903, p. 74.)" We conclude from all this that

Mitchell did not recognize that he needed to make assumptions about gold interest rates absent suspension in order to arrive at an estimate of the extra indebtedness due to suspension.^{10/}

No matter what explains why Mitchell proceeded as he did, we cannot take seriously his estimate of extra indebtedness. Moreover, like Newcomb's, Mitchell's estimates of p_t^*/p_t favored suspension; that is, his estimate of the ratio of the left-hand side of (1) to that of (2) is always less than e_t . Thus, had Mitchell used those estimates of relative deficits and the irrelevancy hypothesis for interest rates-- $v_t^* = v_t/e_t$ --he would have arrived at the conclusion that suspension was a cheap way to finance the war. Hence, like Newcomb's, Mitchell's indictment of suspension as a financing device rests entirely on an unsupported claim that gold interest rates absent suspension would have been substantially lower on average than actual realized gold interest rates.

V. Conclusion

In order to assess the effects of the Civil War suspension of the specie standard on accumulated Civil War debt, it is necessary to arrive at some view about what long-term interest rates would have been absent suspension. One view is that those rates would have been equal to long-term realized gold interest rates under suspension. Newcomb and Mitchell denied this. Newcomb claimed, among other things, that the act of suspending damaged the credibility of government promises and so made interest rates in gold higher than they would otherwise have been.

Newcomb used this qualitative view as the basis for making otherwise unsupported quantitative claims. Mitchell, as we have seen, implicitly assumed that absent suspension the government could have borrowed in gold at 6 percent, an assumption as arbitrary as Newcomb's quantitative claims, but much more extreme.

The behavior of realized gold bond yields offers little support to the Newcomb and Mitchell views. There was no sharp increase in government bond yields in gold that can be attributed easily to suspension itself. As shown in Chart 1, for the second quarter of 1862, gold yields on government bonds were approximately unchanged from what they had been a year earlier, well before suspension. Suspension, itself, therefore, seemed to have little effect on government bond yields in gold. It was not until the summer of 1862 that bond yields in gold started to increase. This rise coincided with the Southern army's successes in the Shenandoah Valley, the Northern army's overwhelming defeat in its Peninsular campaign, and the North's second defeat at Bull Run. That the first substantial bond yield increase that occurred coincided with major military setbacks for the North is consistent with the view that the realized gold yield on government bonds reflected uncertainties about the war, uncertainties which would also have affected government bond yields absent suspension.^{11/}

Table 1: Gold Prices and Government Bond Yields, 1862-1865

	<u>Greenback Price of Gold</u>	<u>Gold Yield on U.S. 6s of 1881</u>	<u>Newcomb Yield on U.S. 6s of 1881</u>
1862.1	1.026	7.1	9.0
.2	1.036	6.3	6.9
.3	1.166	7.4	7.7
.4	1.310	8.1	8.0
1863.1	1.520	10.4	9.5
.2	1.483	9.2	7.9
.3	1.300	8.0	7.4
.4	1.480	9.4	7.0
1864.1	1.590	9.9	8.0
.2	1.833	11.2	8.25
.3	2.447	15.5	9.5
.4	2.200	13.7	8.5
1865.1	1.967	12.4	
.2	1.412	8.6	
.3	1.438	8.8	
.4	1.459	9.3	

Table 2: Newcomb's Estimates

	Newcomb's estimates ^{a/} Gold Price of Greenbacks ($1/e_t$)	v_t^*/v_t	p_t^*/p_t
1862.1	.97	.80	1.00
.2	.96	.90	1.00
.3	.86	.83	.91
.4	.76	.78	.87
1863.1	.66	.71	.83
.2	.67	.77	.71
.3	.77	.82	.74
.4	.68	.82	.77
1864.1	.63	.75	.71
.2	.55	.70	.55
.3	.41	.67	.42
.4	.45	.70	.42

^{a/}See Newcomb (1865, page 169). The v_t^*/v_t column is Newcomb's column (1). The p_t^*/p_t column is the inverse of Newcomb's column (3).

Footnotes

1/The legislation creating greenbacks was passed in February 1862. Earlier, on December 30, 1861, major banks had suspended specie payments and on December 31, 1861, the U.S. Treasury announced that it was suspending specie payments on its debt. For a detailed account of the financial history, see Mitchell (1903).

2/Regarding views when Mitchell wrote, White (1904), in a book review of Mitchell (1903), said, "That the greenbacks made the war far more costly to taxpayers than it would otherwise have been is not now disputed." For recent views, see Galbraith (1975, p. 13, footnote 13) and Friedman and Schwartz (1963, p. 59, footnote 64).

3/This view of greenbacks is consistent with Lincoln's December 1862 message to Congress in which he said

A return to specie payments, however, at the earliest period compatible with due regard to all interests concerned, should ever be kept in view. (Hepburn (1915), page 193)

4/A view consistent with this was expressed by Roll (1972); see footnote 17, page 481. However, as Robert Barro, John Kareken, Robert King, and Alan Stockman have suggested to us, equivalence of payoff distributions is only one of several plausible views that could have been held. One alternative is that people viewed the government as having more options having suspended than if it had not. For example, it is conceivable that

people viewed the set of circumstances under which greenbacks would not be redeemed at the prewar parity as substantially larger than the set of circumstances under which there would have been reneging under the specie standard, perhaps, because not resuming at the prewar parity would have less serious consequences for the government's credit rating than would an explicit default. Also, having issued both greenbacks and bonds with principle promised in greenbacks, the government could conceivably have treated the two differently--perhaps treating the bonds as senior to the greenbacks, somewhat along the lines of how continentals, and bonds were treated after the revolution. In a sense, any such alternative view of payoff distributions makes it meaningless to compare accumulated debts. If the government was buying additional options with suspension, then it may well have had to pay for those options. The fact that they were not exercised does not imply that it was a mistake to purchase them.

5/For a discussion of unit-of-account effects on what is used as media of exchange, see Rolnick and Weber (1985).

6/Newcomb pursued this point of view in his criticism of the National Banking Act, under which he said the government mistakenly surrendered to National Banks its potential monopoly on note issue (1865, Chapter 8).

7/See Newcomb (1865, pages 168-171). We were confused by Newcomb's description of his procedure until we interpreted a page reference as a typographical error. The first line on page 168 begins "The table on page 169 shows. . . ." We think this should be "The table on pages 108, 9 shows. . . ."

8/The "Newcomb yield" is the internal rate of return on 6 percent coupon bonds due in 1881 implied by Newcomb's claims about v_t^*/v_t and actual data for v_t .

9/To obtain an estimate of the nominal primary deficit absent suspension, the left-hand side of equation (2), Mitchell did not assume $p_t^* = p_t/e_t$; that is, he did not estimate the left-hand side of equation (2) by dividing the observed greenback deficit, the left-hand side of equation (1), by the exchange rate, e_t . He separately estimated the revenue the tax structure would have implied absent suspension and what government purchases would have cost. The latter involved estimating what we have been calling p_t^* . For a critique of Mitchell's estimates of relative prices given and absent suspension, see Kessel and Alchian (1959).

10/Mitchell (1903, p. 405) did cite Newcomb's estimate of extra indebtedness, but he did not discuss Newcomb's procedure and, in particular, Newcomb's assertions about v_t^*/v_t .

11/One other bit of data may seem inconsistent with the view that suspension had a large impact on the rate at which the government could borrow. In a sense, the North did not entirely suspend; in 1865 it issued bonds with both interest and principal promised in gold, bonds which sold for essentially the same price in greenbacks as did comparable bonds with principal promised in greenbacks. However, this is not a decisive experiment against the importance of suspension because, as we can imagine Newcomb saying, the government having once reneged by suspending could have been expected to do so again.

References

- Friedman, Milton and Schwartz, Anna J. (1963) A Monetary History of the United States 1867-1960, Princeton University Press, Princeton.
- Galbraith, John K. (1975) Money, Houghton Mifflin Company, Boston.
- Hepburn, A. Barton. (1915) A History of Currency in the United States, New York: The MacMillan Company.
- Kessel, Reuben A. and Alchian, Armen A. (1959) "Real Wages in the North During the Civil War: Mitchell's Data Reinterpreted," Journal of Law and Economics, pp. 95-113.
- Mitchell, Wesley C. (1897) "Greenbacks and the Cost of the Civil War," Journal of Political Economy 5 (March), pp. 117-56.
- _____. (1903) A History of the Greenbacks, The University of Chicago Press.
- Newcomb, Simon. (1865) A Critical Examination of Our Financial Policy During the Southern Rebellion, New York: Appleton.
- Roll, Richard. (1972) "Interest Rates and Price Expectations During the Civil War." Journal of Economic History (June), pp. 476-98.
- Rolnick, Arthur J. and Weber, Warren E. (1986) "Gresham's Law or Gresham's Fallacy?" Journal of Political Economy (February), pp. 185-99.

CHART 1
 BOND YIELDS ON U.S. 6s OF 1881
 & PRICE OF GOLD IN GREENBACKS,
 QUARTERLY, 1861-1865

