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## **Turning Points in the U.S. Civil War: A British Perspective**

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### *Abstract*

This paper examines the Confederate cotton bonds floated in Europe in March 1863 and traded on the London market. Over our March 27, 1863 to June 17, 1865 sample we isolate two, non-reversed, “turning points” that follow news of Confederate defeat at Gettysburg and Vicksburg in July 1863 and the fall of Atlanta in September 1864. Our analysis suggests that the turning points important to Southern interests differ from those identified for the Northern side by Willard, Guinnane and Rosen (1996). It seems that war news did not always have symmetric effects on North and South.

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## Turning Points in the U.S. Civil War: A British Perspective

It may appear somewhat startling that the Confederates should be able to borrow money in Europe while the Federal Government has been unable to obtain a shilling from that usually liberal and enterprising quarter. But the ... risk ... of never being paid at all, in case the South should be subdued and re-annexed ... is so slight that, of itself, it need not deter any man from sharing in an 8 per cent. loan.

*(The Economist, March 21, 1863, p. 309)*

It is now greatly to be regretted that the rebel loan put on the market in England two years ago was not greater in amount ... [Following General] Lee's surrender ... we may safely expect to hear by the next mail that most of the great Yorkshire and Lancashire cotton speculators have been sacrificed on the "Confederate cotton."

*(New York Times, April 28, 1865)*

In March 1863, the Southern Confederacy floated a £3,000,000 loan issue in Europe. This loan is often called the "Erlanger Loan" after its underwriter, Emile Erlanger and Company of Paris. The list of subscribers included British members of parliament and peers of the realm, two editors of *The Times* and other notables (*New York Times*, December 9, 1865).<sup>1</sup> The offering was five times over-subscribed and John Slidell, Confederate Commissioner in France, enthused at this apparent "financial recognition of our independence, emanating from a class proverbially cautious and little given to be influenced by sentiment or sympathy."<sup>2</sup> The 8% yield referred to by *The Economist* (March 21, 1863) derived from coupon payments of 7% paid semiannually combined with an offering price set 10% below the bonds' face value.<sup>3</sup> A key attraction of the Confederate bonds was that they were "cotton backed" and were exchangeable into New Orleans middling cotton at a rate of six pence sterling per pound (at a time when the going rate in England was better than twenty pence per pound). The catch was that the Confederate government undertook to deliver this cotton to one of its ports only after peace had been made -- while the war endured delivery had to be taken inland with the would-be recipient also having to run the Union blockade to get the cotton out.

The Confederate bonds gave the holder what was essentially a warrant to buy cotton at six pence a pound.<sup>4</sup> So, the greater the degree to which the market price exceeded that figure, the more attractive were the bonds, *ceteris paribus*. However, the scope for actually redeeming the bonds for cotton while the war was in progress was limited at best. Schwab (1901, p. 34) assesses the situation as follows:

There never was any doubt of the good faith of the Confederate government, or that it held enough cotton to meet the demands of the loan. How to get the cotton out of the Confederate States to the foreign markets was quite another matter. It was evident at the outset that during the continuance of the war any attempt to do so would be futile. Small amounts of cotton evaded the blockade or reached Europe by way of Mexico, but the Federal fleet prevented any general exportation.

In order for the holder to be sure of obtaining the cheap cotton, the Confederacy had to either win its struggle for independence or at least force the North to sue for peace. While there was some hope that the Union government might honour these bonds even if the Confederacy were defeated, the considerable risk that they would not made the bonds highly sensitive to news of the progress of the U.S. Civil War.<sup>5</sup> Indeed, like the New York gold trades analyzed by Willard, Guinnane and Rosen (1996) -- henceforth WGR -- the London trading of the Confederate cotton bonds offers an invaluable window into how traders perceived the state of the war and the prospects for Southern success.<sup>6</sup>

### **Cotton Bond Prices and War News**

Just as Schwab (1901) and Mitchell (1903) called attention to the apparent relationship between war news and respective gold price movements in the South and the North,<sup>7</sup> so too have earlier observers suggested a similar impact of war news on the value of the cotton bonds. Schwab (1901, p. 36) himself discusses how the bonds declined in 1863 with the news from Gettysburg and Vicksburg in July and the loss of the Battle of Chattanooga in December, before rallying back to 84 (just slightly below the initial offering price of 90) in September 1864 when General McClellan's Presidential candidacy seemed to offer hope for a peaceful resolution of the struggle.<sup>8</sup> But, after the fall of Atlanta virtually guaranteed Lincoln's reelection, the cotton bonds began their final descent. By late 1864, *The Economist* (October 1, 1864, p. 1231) was

portraying the Confederate loan as “unfitted for investors ... [and] combining risks and chances from which nothing but the most complete success of the Confederate Government could be expected to extricate its holders safely.”

Lester (1975, p. 46), in attempting to account for the observed movements in Confederate bond prices over the 1863-65 period, states that the “fluctuations of the loan fully established that its fortunes varied with the fortunes of war.” News from the battlefield was not the only factor, however. In the empirical work below, we find that cotton prices exerted a significant influence on the price of the cotton bonds and accordingly control for cotton price movements in our search for the turning points revealed by the fluctuations in the Confederate loan.<sup>9</sup> Our measure of cotton price movements is based on New Orleans middling cotton, which is the specific grade of cotton laid down in the original terms of the Erlanger loan. This cotton was actively traded on the Liverpool market in England, and all our price quotes are taken from that market. The bonds themselves were to be purchased in installments according to the following schedule:

5% on application  
10% on allotment  
10% on May 1, 1863  
10% on June 1, 1863  
10% on July 1, 1863  
15% on August 1, 1863  
15% on September 1, 1863, less dividend of 3 1/2%  
15% on October 1, 1863  
£90

The relatively low up front payment exposed the issuers to the risk that early weakness in the Confederate bonds might prompt purchasers to default rather than continue making the scheduled payments. After initially trading at a premium, the Confederate loan’s decline to a more than 4% discount in early April 1863 led James Mason, Confederate Commissioner in England, to authorize the expenditure of up to £1,500,000 in re-purchasing bonds for the government’s own account to support the loan. In his report to Secretary of State Benjamin, Mason listed purchases totaling £1,388,500 between April 7, 1863 and April 24, 1863 (Bigelow, 1888, p. 187). These purchases artificially buoyed the price of the cotton bonds in April.

This manipulation ended as bondholders committed to the May 1 payment that increased their overall contribution to 25%, however -- making widespread defaults less likely after that point. Gentry (1970) calculates that the Confederates eventually were able to recoup £310,036 from reselling some of these bonds for cash and disposed of others in debt settlements worth £525,000 -- but still suffered a net loss on the market manipulation of more than half a million pounds.

Fortunately for our purposes, the manipulation ended well before the battle of Gettysburg and the fall of Vicksburg and does not seem to interfere with our ability to identify whether these, and subsequent, events were major turning points in the war. Note that the Confederate authorities also attempted to manipulate the gold price of Confederate currency (see Morgan, 1985, pp. 119-121). Gold sales in January 1865 by Secretary of the Treasury George A. Trenholm appeared temporarily to lower the gold price of Confederate currency in spite of the adverse military situation, and may account for the positive shock to the Confederate currency price in early 1865 shown by McCandless (1996, p. 667). By contrast, the only 1865 shocks evident from the cotton bond data are negative in direction and appear to be more reflective of actual developments in the Civil War. In 1865, the Confederate armies of Lee and Johnston were trapped between the superior forces of Grant and Sherman and it is hard to find any significant news favourable to the Southern cause. Indeed, Sherman's advance through the Carolinas beginning in early February 1865 was followed by the fall of Richmond and the surrenders of Generals Lee and Johnston in April 1865 that effectively ended the struggle.

The majority of the cotton bonds were never redeemed as the North refused to consider the claims of the bond holders after the conquest of the South was completed. However, a small portion of the bonds was redeemed under the original terms of the issue, which provided for a semiannual drawing of 1/40th of the bonds unredeemed by cotton. The bonds drawn were repurchased at face value. By this means, the entire issue would have been liquidated within twenty years of the first drawing on March 1, 1864. In the empirical work below, we find significant shifts in bond prices around the March 1864 and March 1865 drawings as

well as a positive shift in January 1864 on news that funds were on hand to undertake the promised first drawing.<sup>10</sup> Redemptions of the bonds in exchange for cotton could also have influenced the price of the cotton bonds by shrinking the supply. However, despite efforts initiated by Erlanger and Company and others to bring out cotton that could be used to cancel the cotton bonds, the "Report on the Erlanger Loan, February 11, 1865" put the total amount canceled as of October 1, 1864 at only £256,800 (see Todd, 1954, p. 184). Gentry (1970, p. 167) gives an updated estimate of £376,200 for bonds converted to cotton as of March 1865. It is unlikely that these redemptions were extensive enough to significantly impact the trading price of the bonds.

We begin our empirical analysis by regressing the weekly percentage change in the price of the cotton bonds ( $\% \text{ BOND}_t$ ) on its own lagged value ( $\% \text{ BOND}_{t-1}$ ) and the lagged percentage change in the price of New Orleans middling cotton on the Liverpool market ( $\% \text{ COTTON}_{t-1}$ ).<sup>11</sup> As the bonds were, in principle, redeemable into New Orleans middling cotton at a fixed price, bond prices might reasonably be expected to appreciate as the market price of this cotton in England rose, *ceteris paribus*. Our regression covers 109 weekly observations from March 27, 1863 to June 17, 1865. The results are as follows (with standard errors in parentheses):

$$(1) \quad \% \text{ BOND}_t = -0.014 + 0.213 \% \text{ BOND}_{t-1} + 0.718 \% \text{ COTTON}_{t-1}$$

$$(0.008) \quad (0.090) \quad (0.201)$$

The intercept is significant at the 7% level, the lagged dependent variable is significant at the 2% level, and the lagged percentage change in the cotton price is significant at better than the 1% level. The equation  $R^2$  is 0.150. Allowance for further lags in the dependent variable showed these additional lags to be statistically insignificant. Similarly, adding the contemporaneous percentage change in the cotton price -- or additional lags of the percentage change in the cotton price -- did not significantly improve the fit.<sup>12</sup>

We looked for blips in the data by successively adding to the above equation a dummy variable set equal to one for each individual week in the sample.<sup>13</sup> The dummy is assigned the value of one only for the

specific week in question. The dummies that are significant at the 10% level or better are reported in Table 1 along with major news stories from *The Times* and *The Economist* for that week that may account for the indicated break.<sup>14</sup> The breaks in July 1863 (with news of Southern defeat at Gettysburg and the capitulation of the garrison at Vicksburg) and December 1863 (with news of Southern defeat at the Battle of Chattanooga) both seem to be plausibly explained by the unfavourable developments on the battlefield. As shown in Figure 1 -- which plots all available closing daily quotes on the London market -- the pre-Gettysburg bond price levels were never again exceeded.<sup>15</sup> The Chattanooga news, however, was followed by an initial upward spike in the week ending December 19, 1863 and then by a gradual recovery that saw the bond price temporarily rise above the pre-Chattanooga levels by late summer 1864. This suggests that, while Gettysburg/Vicksburg may have signalled a major turning point in the bond series, Chattanooga probably did not.

The upticks in the bond series in 1864 are not so easily explained by news from the battlefield alone. The upticks in February and September were accompanied by speculation on possible French intervention (*The Times*, February 20, 1864) or a possible armistice, respectively -- the latter corresponding to the apparent ascendancy of McClellan, who was running for the presidency on a peace platform (*The Times*, September 5, 1864). There was some news on federal reversals in the eastern theater on each occasion, however, which leaves at least some doubt as to the relative importance of the different factors. There is also an uptick in January 1864 corresponding to news that funds were available to undertake the promised first drawing to retire 1/40th of the outstanding debt and a down tick at the end of February when the bonds went ex-dividend.

That leaves the two most significant breaks in 1864 that occur in March and October. The March blip is probably best accounted for by rumours that General Sherman's campaign was in difficulties. While history shows such rumours to have been false, belief that Sherman might be forced to abandon his advance toward Atlanta could be enough -- in conjunction with confirmation of a costly federal defeat in Florida -- to

justify the strong uptick at that time. The same cannot seemingly be said of the October 1864 uptick. With news of the fall of Atlanta already in hand, news of federal inability immediately to follow up a victory in the Shenandoah Valley and news of Confederate raids in the west does not seem enough plausibly to account for the resurgence of the Confederate loan that week. Figure 1 clearly shows, however, the ephemeral nature of this uptick. The strength in mid-October 1864 appears to be only a short-lived bounce after a major decline coinciding with intelligence on the fall of Atlanta (which was reported in England on September 12, 1864). While the dummy for that week in September is, surprisingly, not individually significant, subsequent analysis nevertheless suggests that the second major turning point in the data occurs at this time.

In any event, the positive blip in October 1864 is the last significant uptick in the bond series. After an initial downturn in the first week of March 1865 (on news on Charleston's capture by federal forces as well the bonds going ex dividend in that week), there is a major drop in mid-April corresponding to news of the fall of Richmond, followed by three further significant downturns. Two of these seem to be associated with the surrenders of General Lee and Johnston that left almost no Confederate forces in the field east of the Mississippi. The last, in the week ending May 20, 1865, is hard to associate with any new developments but is most likely a further reaction to the fact that the Confederacy had clearly reached the end of the road. Overall, it would seem that the movements in 1863 and 1865 are well explained by war news, while those in 1864 are harder to account for from the military situation alone. Rather, so long as the Confederate situation did not look totally irretrievable, rumours of peace proposals and hopes that Lincoln's reelection bid would be unsuccessful seem the most plausible explanation for the temporary strength in the Confederate loan.

### **Turning Points Revealed by Cotton Bond Data**

As with WGR's analysis of the gold price of Northern greenbacks, we wish to distinguish between short term "blips" in the data and more persistent shifts that may reflect major turning points. The potential importance of this distinction can be seen in the results of Smith and Smith's (1997) analysis of how



Northern gold returns were affected by the event dates given in the classic study by Mitchell (1903). Smith and Smith (1997) find that dummy variables attached to all these event dates can account for as much as 17% of the total wartime variation in gold returns. However, the *net* effect of these shifts is a suggested 30% fall in the price of gold, whereas in reality gold *rose* by over 30% during this same historical period. Although Smith and Smith (1997, p. 708) argue that “other fundamentals must have driven up the gold price before 1865,” another possibility is that many of the apparent shifts were reversed over the sample period. Indeed, WGR’s results imply that only a few of the events in Mitchell’s (1903) lists represented actual turning points in Northern gold returns.

We adopt WGR’s approach of examining successive “windows,” or subsamples of the data, and search for structural breaks that are not reversed within this time period. First, we selected three-month windows that represent approximately the same amount of calendar time as the 100 day windows used by WGR -- but necessarily fewer observations owing to our being restricted to weekly data. We estimate equation (1) over the first 12-week interval of our March 1863-May 1865 sample period, then we subsequently eliminate the first week of the sample and add the thirteenth week, and so forth until we have estimated all ninety-eight 12-week intervals contained in the sample period. We retain the  $R^2$  values from each of these twelve week intervals. This is equivalent to the first two steps of the WGR approach. The next step in the process is to isolate the windows with the lowest  $R^2$  values; these are the periods in which a structural break has most likely occurred. This is equivalent to WGR’s F-test analysis.<sup>15</sup> Figure 2 shows a plot of the  $R^2$ ’s from our estimation of equation (1) over all ninety-eight 12-week windows contained in our sample. As shown in the figure there seem to be four possible windows containing break points: mid-July to October of 1863, mid-March through July of 1864, mid-September 1864 through December 1864, and March through April of 1865.

The final step in our process, as with WGR, is to identify a turning point within each window. For each observation that falls within the window with a potential break point, we estimate equation (1) with an added dummy variable that takes on the value of zero for the weeks in the sample prior to that particular week

in the window and a value of one for that particular week and all the weeks that follow. We estimate this equation over the period from 15 weeks before the potential break point through 15 weeks after that date. This process of adding the rolling dummy is repeated for each week within the window containing the potential break to determine if and when the break occurred. Again our 31 week sample period is smaller than the 150 day estimation period used by WGR and necessarily reduces the relative power of our empirical work.

We are able to identify break points in two of the windows and find weaker support for a third. Table 2 depicts the potential turning points in the Confederate cotton bond series and also offers, for comparison, the greenback turning points previously identified by WGR. The first break in our series occurs in the last week of July 1863, when confirmation of the events at Gettysburg and Vicksburg was received in England. The second clear turning point occurs in the week of September 17, 1864. This is the week when news of the fall of Atlanta arrived in England. The final potential break point we identify occurs during the first week of March 1865. Due to the rather abrupt end of our sample, this is the last date within the final window that we are able to test using a 30-week interval surrounding each date. We are not able to compare the significance of this apparent break point with the effects of the fall of Richmond or the surrenders of Generals Lee and Johnston. The March 1865 “break” is almost certainly influenced by those later events as well.<sup>16</sup>

Notwithstanding the small number of observations available for the empirical work, the key turning points identified after news of Southern defeat at Gettysburg in July 1863 and the loss of Atlanta in September 1864 seem plausible and consistent with the importance historians attach to these events. The suggested turning points also seem very much consistent with a visual inspection of the data plotted in Figure 1. The first break at the end of July 1863 occurs as the cotton bond price plunges from just above its offering price of £90 in mid-July down to below £75 on August 1, 1863 and £55 on August 8. Despite a partial recovery of the cotton bonds between late 1863 and September 1864, the pre-Gettysburg price level is never

regained. Although the empirical work looks for a non-reversed shift in the percentage change in bond prices, rather than the level of the bond price, the idea that Gettysburg corresponds to a turning point in the cotton bond series hardly seems inconsistent with the trends evident in the raw data. Meanwhile, the second suggested turning point in 1864 corresponds to a drop in the bond price from over £80 in mid-September to £63 by October 1, 1864 and £58 on October 8. Once again, despite a partial recovery later in 1864 the pre-turning point level is *never regained*. Finally, the March 4, 1865 turning point corresponds to another sharp drop that begins the final collapse of the cotton bond series.

The late July 1863 break in our series is consistent with the July 6, 1863 shift identified by WGR once one allows for the additional time it took for news of Gettysburg and Vicksburg to reach England by ship. Our September 17, 1864 break occurs about three weeks after the August 24, 1864 shift found by WGR. Since Atlanta did not fall until September 2, WGR's shift cannot be directly attributed to this same event. Indeed, WGR link their shift to rumours of Lincoln's agreement to a peace conference. Nevertheless, it is possible that further good news for the North from Atlanta in early September helped ensure that the August 24 shift became a non-reversed turning point rather than just a blip in the greenback data. With regard to the final cotton bond turning point of March 4, 1865, it is quite possible that this pertains not just to reports of the fall of Charleston but also to the earlier failure of the peace conference between Lincoln and Confederate Vice President Alexander Stephens off Hampton Roads on February 3, 1865. In any event, by this time there was growing recognition that the war was nearing its conclusion with the South having little if any bargaining strength left.

WGR identify, and provide potential explanations for, two turning points that we do not observe in our sample. The first is the retreat of General Early's army from the walls of Washington City in July of 1864. While this event removed a threat of political and economic disruption to the North, our inability to find a similar break in the Erlanger bond series suggests that Early's retreat was not seen as greatly changing the South's chances of survival. It is, of course, hardly surprising that the removal of Early's relatively small

force had more impact on the inhabitants of Washington City and the eastern United States than on traders on the other side of the Atlantic. The other significant turning point found by WGR occurs on August 27, 1863 but does not correspond to any known major news event and is not confirmed in any way by our cotton bond series.

### **Conclusions**

Our analysis of the Confederate loan market suggests that British debt holders, like Northern gold traders, recognized the importance of Gettysburg and Vicksburg. News of these events produced a persistent downturn that appears to confirm WGR's finding that these events triggered a major turning point in the gold premium on the Northern greenback.<sup>17</sup> This event probably eased Northern fears and ended Southern hopes of an extended offensive campaign in the North. While the pre-Gettysburg levels are never regained, the Erlanger bonds gradually recover after bottoming in early December 1863 when news was received of Southern defeat at Chattanooga. The slow pace of the Northern advances after the fall of Chattanooga and the continued rumours of peace may help account for the bond price nearing the offering price of £90 in early September 1864.

Prior to the fall of 1864, the London market evidently believed that there was a reasonable chance of either the South winning its independence or alternatively achieving a diplomatic solution that would result in repayment of the Erlanger loan. In this case, the hopes for peace in the summer of 1864 helped both Southern *and* Northern asset prices. The loss of Atlanta was clearly seen as a major, and probably irretrievable, reversal of this favourable trend for the South. For the North, however, this news simply added to an already favourable trend -- hence perhaps explaining why WGR do not find a separate turning point in their analysis subsequent to the fall of Atlanta.

In relating our results to those of WGR one must remember that, while British holders of Confederate debt were concerned with the probability that the Erlanger loan would be repaid, holders of

Northern greenbacks surely focused on events that affected the future prospects of greenback convertibility. For this reason, British holders of Confederate debt and holders of Northern greenbacks could not be expected always to react in the same way even if they had access to the same information. And the geographical separation of the two markets meant that the information sets were, in practice, far from identical. Nevertheless, our results suggest that traders in London actually had a pretty good grasp of the evolution of events in America and reacted effectively to the news as it arrived. Nor should the ultimate failure of the Confederate cause be taken to imply that there was anything foolish about the initial enthusiasm for the Confederate cotton loan.

## Footnotes

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1. There is also a “W.E. Gladstone” listed on the books and it has been alleged that this individual was none other than the Right Honourable William E. Gladstone, Chancellor of the Exchequer at the time of the U.S. Civil War (Bigelow, 1905).
  2. Letter from Slidell to Judah P. Benjamin, March 21, 1863, quoted by Thompson (1935, p. 61).
  3. That is, with interest payments of £7 and a purchase price of £90, the annual yield is given by  $7/90$  -- which amounts to 7.78%, or 8% after rounding.
  4. The one important difference between the cotton bond and a traditional warrant is the lack of a well identified expiration date. The cotton bonds were to be retired within 20 years but the convertibility feature was to end “not later than six months after the ratification of a treaty of peace between the present belligerents.” Because of the lack of a firm expiration date it is not possible to price the warrant value.
  5. These cotton bonds represented the Confederacy’s sole formal external loan. Grossman and Han (1996) argue that the Confederacy would have undertaken more foreign loans had she had fewer mobilizable resources. As it was, however, military reverses in the summer of 1863 made it infeasible for the Confederacy to pursue any further Erlanger-type loans -- as acknowledged by the Confederacy’s own fiscal agent in Paris, Colin McRae (see Gentry, 1970, pp. 183-184; Grossman and Han, 1996, p. 201).
  6. It is also important to note that bad news for one side is necessarily good news for the other. For example, while there is abundant evidence that the costly Battle of Antietam in

September 1862 produced a negative reaction in the South (Burdekin and Langdana, 1995, chapter 4), WGR find that there was also a negative shock to the North at this time. Weidenmier (1998a), in testing for turning points in Confederate gold prices, confirms that (contrary to McCandless, 1996) war news indeed cannot be assumed to have symmetric effects on North and South.

7. Such a relationship also seems evident in the fluctuations of Lerner's (1955) general price index for the Eastern Confederacy (see Burdekin and Langdana, 1993).
8. Davis and Pecquet (1990), in examining estimated gold yields on the Confederate bond issues of 1861 (the \$15 million loan and the \$100 million loan), find similar evidence of a recovery in 1864, with the rate in September 1864 being close to its March level. Their series otherwise show the expected upward spikes following Gettysburg and Vicksburg in July 1863 and the fall of Atlanta in September 1864. While covering a longer time span than the Erlanger bond quotes, the gold yield series must be derived from *ex post* calculations based on future resumptioins in gold payments and also miss data for several months in mid-1864 before ending in December of that year.
9. After completing our research on the Erlanger loan we have become aware of an interesting new study by Weidenmier (1998b), who also considers effects of both war news and cotton prices on the Confederate cotton bonds. Weidenmier (1998b) observes that, after January 1864, the cotton bond prices are highly correlated with cotton prices but appear relatively insensitive to war news. Weidenmier does not, however, formally control for both war news and cotton prices in his empirical work, which focuses on the correlations between the bond price and cotton prices, the gold price of Confederate

currency and British consol prices over various sub-periods. Consequently Weidenmier's analysis is quite different from the approach taken in this paper and indeed leads to somewhat different conclusions. Our analysis suggests that war news *does* remain important after January 1864 and seems to account for major turning points in the data in late 1864 and (most likely) early 1865.

10. Gentry (1970, p. 167) records the available information on the interest and principal payments on the Erlanger loan: following the initial interest payment of £80,360 in September 1863, subsequent payouts (interest and principal combined) totalled £123,307 in March 1864, £119,783 in September 1864, and an estimated £114,730 in March 1865.
11. We have collected, from issues of *The Economist*, *The Times* and a Confederate organ known as *The Index*, all available quotes on the cotton bonds on the London market. However, the bonds did not trade on every day when the market was open and there were other days when trading was very thin. Hence, combining the trading data over weekly periods avoids a non-synchronous trading problem and likely produces more reliable results. Moreover, while exploratory analysis using the daily data does suggest a few more blips -- including one corresponding to news of the Battle of Chickamauga in November 1863 -- the results are generally consistent with the findings for the weekly data. For any given week we take the last reported closing price during that week and calculate the percentage change from the last reported closing price during the previous week.
12. The results are also not significantly altered by excluding the percentage change in the cotton price altogether.



13. WGR's greenback analysis uses the natural log of the price level instead of the percentage change. Redoing our analysis with the log level of the bond price and lagged log level of the cotton price makes some of our mildly significant blips no longer significant at conventional levels. The most significant events remain the same under both approaches, however. It is true that our tests for breaks in the percentage change in the cotton price (i.e., shifts in average weekly returns) are conceptually different from WGR's tests that allow for a one-time shock to the price *level*. But re-doing the analysis with log levels in place of percentage changes still identifies major turning points associated with Gettysburg/Vicksburg and the fall of Atlanta. This suggests that, although our coefficient estimates are not directly comparable to those of WGR, the different formulation of the variables does not affect the inferences derived from the procedure.
14. The information sets available to the New York gold market and the London bond market were different. Full reports of battlefield events normally lagged two weeks behind the information received in New York due to the time involved in the transatlantic crossings. The irregular nature of such crossings also meant that unconfirmed news and rumours were less frequent but when present could persist for a longer period than in New York. In addition, events considered important in one market may not have been as important in the other due to different perceptions and the different securities involved.
15. WGR base their procedure on Banerjee, Lumsdaine, and Stock (1992). The latter paper uses quarterly data and finds the procedure robust for tested windows of 100, 200, and 500 observations. We are unwilling to assign a similar level of confidence in the power of this test for our smaller windows. For that reason, we do not apply formal F-tests to our

more limited sample where the true distribution of the test statistics is unknown. Rather we limit ourselves to visually examining the  $R^2$ 's for the different windows.

16. While we are confident that turning points occur in these three windows, we attach less weight to the exact date *within* each window that represents the apparent break point. Indeed, while re-estimation in log levels identifies the same windows that correspond to Gettysburg/Vicksburg and Atlanta, the most significant break point within the window is deferred by two weeks in the Atlanta case (with the indicated Gettysburg break unchanged at July 31, 1863).
17. The stakes were indeed high at this time. Churchill (1972) suggests that Gladstone -- himself an alleged subscriber to the Confederate loan -- might well have carried England into the Confederate camp if Lee had won at Gettysburg.

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**Table 1****Breaks in the Confederate Cotton Bond Series, 1863-1865**

Week Ending	Dummy Variable Coefficient	Standard Error	Significance Level	That Week's Major News
July 31, 1863	-0.142	0.081	0.083	Gettysburg and Vicksburg <sup>a</sup>
December 5, 1863	-0.155	0.081	0.058	Southern defeat at Chattanooga <sup>b</sup>
December 12, 1863	-0.190	0.081	0.021	Chattanooga outcome confirmed <sup>c</sup>
December 19, 1863	0.163	0.084	0.055	Federal advance from Chattanooga reversed <sup>d</sup>
January 15, 1864	0.139	0.081	0.090	Funds on hand for March 1 drawing to retire 1/40th of outstanding bonds <sup>e</sup>
February 20, 1864	0.136	0.081	0.097	Federal reverses in Virginia, rumours of possible French recognition <sup>f</sup>
February 28, 1864	-0.197	0.081	0.017	Bonds now trading ex-dividend <sup>g</sup>
March 21, 1864 Southern	0.210	0.079	0.010	Federal reverses in the west, victory in Florida confirmed <sup>h</sup>
September 10, 1864 telegrams	0.141	0.081	0.086	Federal reverses in Virginia, from New York on possible armistice <sup>i</sup>
October 15, 1864 Shenandoah,	0.177	0.081	0.031	Federals contained in the Southern incursions in the west <sup>j</sup>
March 4, 1865	-0.170	0.087	0.054	Bonds ex-dividend, Charleston falls <sup>k</sup>
April 15, 1865	-0.266	0.078	0.001	Fall of Richmond <sup>l</sup>

April 29, 1865	-0.183	0.083	0.030	Surrender of General Lee <sup>m</sup>
May 13, 1865	-0.148	0.081	0.071	Surrender of General Johnston <sup>n</sup>
May 20, 1865	-0.199	0.081	0.015	None <sup>o</sup>

## Notes to Table 1

The news referred to in the table is as reported in *The Times* and/or *The Economist* during the week in question. The specific news accounts are detailed below:

<sup>a</sup> *The Times* (July 27, 1863) reports that the Confederate loan, “on the news by the China, has receded to 9 discount” while *The Economist* (August 1, 1863, p. 852) reports that the “greatest fluctuation has also been in the Confederate loan ... on the news of the recent reverses.” *The Economist* (August 1, 1863, p. 841) also has, as its lead article, an assessment of the implications of the Southern defeats at Gettysburg and Vicksburg.

<sup>b</sup> *The Times* (December 5, 1863) reports that the Confederate loan suffered “a renewed decline of 3 per cent. on the news of the defeat of General Bragg at Chattanooga.”

<sup>c</sup> *The Times* (December 8, 1863) reports that the “confirmation of the defeat of General Bragg produced a severe effect on the Confederate Loan ...” *The Economist* (December 12, 1863, p. 1390) refers to “the unfavourable advices from America respecting the unfavourable position of the South.”

<sup>d</sup> *The Times* (December 14, 1863) reports that the “news by the Persia has produced a rebound of 3 per cent. from the late severe decline in the Confederate loan.” The Cunard Royal Mail steamer Persia carried reports on the Battle of Chattanooga, news of the escape from an Ohio prison of Confederate General John Hunt Morgan, and reports of a standoff between Generals Meade and Lee at the Mine Run Valley in Virginia. An update on the aftermath of the Battle of Chattanooga (dated December 2) stated that the Federal troops, having advanced south to Ringgold, evacuated the town on December 1 “and returned to Chattanooga” (*The Times*, December 12, 1863). The December 12 initial coverage of the Persia’s dispatches also states that official accounts of the battle do “not give the exaggerated results of previously received telegrams.” This implies that the consequences of the Southern defeat at Chattanooga may have been less severe than had previously been believed.

<sup>e</sup> *The Times* (January 14, 1864) reports that the “approach of the drawing for 2½ per cent. of the loan to be paid off at par, which will take place on the 18th of next month, and for which the funds are in hand, has led adverse operators to close their accounts ...”

<sup>f</sup> *The Times* (February 20, 1864) reports the Confederate loan “was supported by the further details of Federal reverses, and by a revival of rumours as to a possible recognition of the Confederacy by France.” News arriving by steamer the day before described the repulse of Union General Sedgwick, with three corps of the Army of the Potomac, stating that details “confirm the reports of heavy losses to the Federals.” Other news included the failure of a plot to liberate federal prisoners held in Richmond, and a successful raid by Confederate General Early.

<sup>g</sup> The Confederate loan steadily declined over the week, beginning “at 52 to 54--a relapse of 4 per cent. on realizations” (*The Times*, February 24, 1864) before falling to “45 to 47, without the drawing but with the



dividend” (*The Times*, February 28, 1864). On March 1, 1864, *The Times* reported that the loan was “quoted 42 to 44 ex dividend and drawing.”

## Notes to Table 1 (contd.)

<sup>h</sup> *The Times* (March 17, 1864) reports a “rise of more than 4 per cent. in the Confederate Loan on the confirmation of the recent Federal reverses and the advance of the premium on gold to 62.” *The Times* (March 9, 1864) prints dispatches from the Africa on the defeat of a federal cavalry expedition from Memphis and fears that General Sherman’s “position is jeopardized by the closing in upon his rear of the victorious Confederate cavalry.” There is also confirmation of federal defeat in Florida, after which the “Federals retreated in their shattered condition to Jacksonville, closely pursued by the Confederates. It was considered highly probable that they must re-embark on board their transports and return to Hilton Head.” Finally, *The Times* (March 21, 1864) reports that “news by the Asia of the increase of apprehension regarding the fate of the army of General Sherman and of the advance in the premium of gold to 68¾ caused an improvement of 2 per cent. in the Confederate Loan.”

<sup>i</sup> *The Times* (September 3, 1864) refers to an advance in the Confederate loan “on the later news by the Persia.” *The Times* (September 5, 1864) prints the dispatches carried by the Persia, which included the repulse of federal forces at the Weldon Railroad in Virginia and Southern victory at Charlestown in western Virginia. *The Times* (September 6, 1864) reports a further rise in the loan that “was partly in consequence of the receipt of private telegrams from New York to the effect that the increased prospects of an armistice had caused gold to decline to 246, and that General M’Clellan was considered certain to receive the nomination of the Chicago convention on the 29th of August.”

<sup>j</sup> *The Times* (October 11, 1864) refers to “Southern reports ... of General Sheridan having been arrested in his course of victory and driven back by the Confederates across the Shenandoah.” Dispatches received the same day from the steamship Arabia reports the Southern forces in the Shenandoah holding a strong position with most of the army intact and also report Confederate incursions into Tennessee and Missouri led by Generals Forrest and Price. *The Times* (October 15, 1864) reports a further “rebound of 8 per cent. in the Confederate Loan, consequent partly on the news by the Persia and partly on the turn of the recent adverse speculation at Liverpool.”

<sup>k</sup> *The Times* (February 28, 1865) reports the “Confederate loan now quoted ex dividend, &c., and left off at 48 to 50.” This was followed by “a fall of 5½ per cent. in the Confederate Loan on the news of the taking of Charleston, the final price being 42 to 44.”

<sup>l</sup> *The Times* (April 15, 1865) reports the capture of Richmond by federal forces and “a fresh fall of 7 per cent.” in the Confederate loan.

<sup>m</sup> *The Times* (April 24, 1865) reports the surrender of General Lee and that the Confederate loan “touched 12 and 17, closing at 13 to 15, or 4 per cent. below the price of Saturday.”

<sup>n</sup> *The Times* (May 10, 1865) reports that the “Confederate Loan, on the intelligence of Johnston’s surrender, went to 12 to 14, a decline of 1 per cent.” *The Times* (May 12, 1865) provides the official

announcement of Johnston's surrender and that there "now remains to the Confederacy no army but that of Texas ..."

° While there were no major new developments reported for this week, this further decline follows the devastating news of late April and early May that ended all hopes that the Confederacy could prevail.

**Table 2**

**Turning Points in the Confederate Cotton Bonds vs. Greenback Turning Points, March 1863-May 1865**

*Turning Points in the Confederate Cotton Bonds*

Week Ending	Dummy Variable Coefficient <sup>a</sup>	Standard Error	Significance Level	That Week's Major News
July 31, 1863	-0.045	0.025	0.085	Gettysburg and Vicksburg
September 17, 1864	-0.041	0.023	0.084	Fall of Atlanta and Mobile <sup>b</sup>
March 4, 1865	-0.098	0.036	0.011	Fall of Charleston <sup>c</sup>

*Greenback Turning Points Identified by WGR<sup>d</sup>*

Date	Percentage Change in Greenback Price	Long-run Percentage Change in Price	Major Events
July 6, 1863	1.56	31.2	Gettysburg and Vicksburg
August 27, 1863	-0.63	-12.6	Unknown
July 12, 1864 news	4.80	96.0	Early's army retreats; financial
August 24, 1864	0.40	8.0	Rumours of a peace conference
March 8, 1865	2.60	52.0	Unknown

Notes:

<sup>a</sup> Unlike Table 1, where the dummy variable takes on a value of one only for the week in question and zero otherwise, the dummy variable here takes on a value of one for the week in question and all weeks after this date.

<sup>b</sup> *The Times* (September 17, 1864) reports “news by the China ... of the events at Mobile and Atlanta ...” News of the evacuation of Atlanta was reported in *The Times* on September 12, 1864.

<sup>c</sup> We are more confident of a break occurring within this final period as a whole than we are that this particular week is really the most critical one. Data limitations prevent us from testing whether the subsequent news of the fall of Richmond and surrenders of Generals Lee and Johnston led to more significant turning points. There are simply not enough observations available after these latter events.

<sup>d</sup> These turning points are as laid out in WGR’s Table 1 (p. 1009).