

How Fiscal Policy Affects the Price Level: Britain's First Experience with Paper Money

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The views expressed in the following do not necessarily reflect the
opinion of the Eurosystem.

Restriction period 1797-1821

- Britain suspends the convertibility of Bank of England notes into gold: paper currency regime and flexible exchange rates
- Very high level of public expenditures due to Napoleonic Wars
- Contribution: impact on prices depends on probability that public debt
 - will be reimbursed
 - in a currency that has stable purchasing power

- ① Course of events
- ② Public debt and (asset) prices
- ③ Conclusions

- 1 The onset of convertibility suspension and the Bullion Report
- 2 Fiscal pressure and interactions between the BoE and the Treasury
- 3 The long path to resumption

Course of events - The onset and the Bullion Report (1)

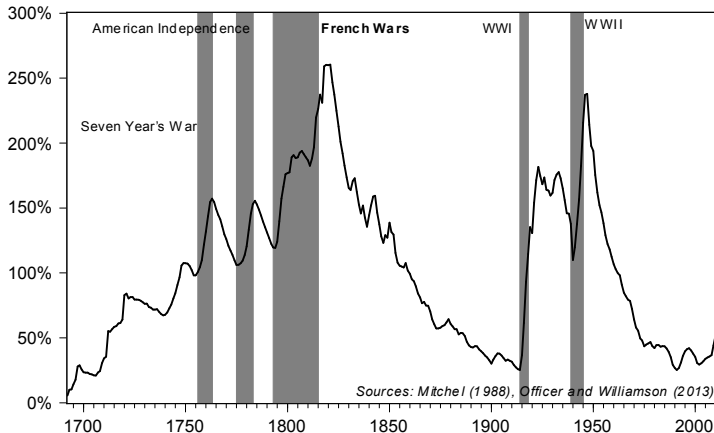
- Collapse of assignats and bank run (Kindleberger, 1984)
- Pound and the exchange rate start depreciating around 1809
 - ▶ prices
 - ▶ xrate
- Bullion Report blames BoE note issue
- Note issue coincides also with financial panic \Rightarrow Lender of Last Resort (Clapham, 1944; Feaveryear, 1964)

Course of events - Fiscal pressure (1)

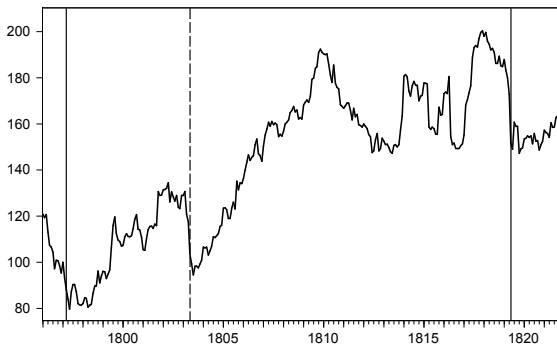
- Series of military disasters in 1809
 - Battle of Wagram
 - Peninsular War
- Room for maneuver in terms of taxation limited (O'Brien, 1988)
- BoE essential for war finance
 - Long-term loans for England, Ireland, and Portugal (Grellier, 1812)
 - Short-term borrowing +22% (Mitchell, 1988)

Course of events - Fiscal pressure (2)

Debt to GDP ratio, 1692-2011



Stock price Bank of England, January 1797=100 January 1796 to December 1821



Course of events - The long path to resumption

- Suspension to end 6 months after definite peace treaty
- Lending to Treasury continues (Cannan, 1919; Clapham, 1944): +40% in public securities between 1816 and 1818
- Parliament imposes debt reimbursement along with resumption

Sustainability of public finances

- Fiscal limit (Sargent and Wallace, 1981; Leeper, 1991)
- Exogenous factors, such as war affect fiscal limit
- No credible/contingent commitment possible
- Agents assess probability of default and adjust consumption, investment, and pricing decisions
- Affects price level and real amount of outstanding debt

Empirical strategy

- Prices can help to measure the probability of soft default perceived by agents
- Agents infer information regarding fiscal sustainability from war-related events
- Detect level shifts in prices
- Coincide with events/battles that change agents' expectations of fiscal sustainability

Econometric methodology

- Detect break points in time series (Bai and Perron, 1998 and 2003)
- Pure structural change model: $y_t = z_t' \delta_j + u_t$
- Abrupt changes in conditional mean: $z_t = 1$

Archival Evidence

- *The London Times, The London Gazette*
- BoE archives
 - Fluctuations in 3% consols and significant events; loans
 - Price data (consols, gold, exchanges) and significant events

Link between price movements and events that caused them in real time

Public debt and (asset) prices - application (4)

1797

London					
£	s	d	q		
35.1	3.17.6	5.4	35.6.56	Lord St Vincent's	100
35.5	3.17.6	5.4	35.52	very - Feb 14 th	
35.2	3.17.6	5.4	40.53	Lord Duncan's	100
35.2	3.17.6	5.5	40.50	very - Oct 10 th	
34.9	3.17.6	5.1 1/2	30.46	in Bank decline	
36.	3.17.6	5.7 1/2	35.48	paying Gold - Feb 28 th	
36.8	3.17.6	5.6 1/2	39.55	New Upper carriage	
36.	3.17.6	5.6 1/2	37.50	Birmingham 30 th Feb	
36.	3.17.6	5.6	32.51	Spanish Dollar	
36.2	3.17.6	5.5 1/2	32.52	for circulation in Britain	
36.4	3.17.6	5.3	38.53	Gold seven shilling	
36.4	3.17.6	5.3	32.51	prices increase	
36.6	3.17.6	5.1 1/2	40.55	Price of Wheat 2 nd of	
36.8	3.17.6	5.1 1/2	40.55	Prussia, vice	
36.8	3.17.6	5.1 1/2	38.56	Lord Macartney's	100
36.10	3.17.6	5.1 1/2	40.60	sent to Paris, vice	
38.	3.17.10 1/2	5.1	48.70	to go to July 19 th	
38.	3.17.10 1/2	5.7 1/2	50.73	Dollar new issue of 10 th Dec	
37.7	3.17.10 1/2	5.7 1/2	42.65	in Bank, at 100 and 100	
37.10	3.17.10 1/2	5.7 1/2	42.54	called in 11 th Oct 1797	
38.	3.17.10 1/2	5.7 1/2	40.56	(the bank of 2225,000)	
38.1	3.17.10 1/2	5.7 1/2	40.56		
38.2	3.17.10 1/2	5.7 1/2	30.54		
38.4	3.17.10 1/2	5.7 1/2	30.52		

Financial data reflect subjective expectations of investors about future (Frey and Kucher, 2000; Oosterlinck et al., 2013)

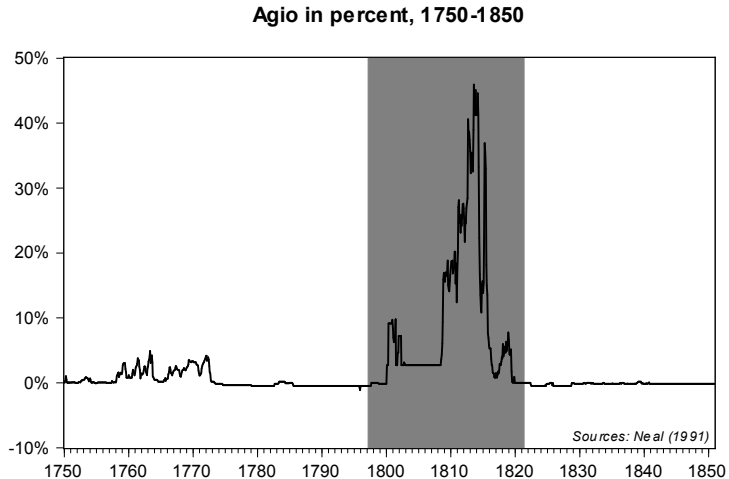
The agio

- Difference between market and mint price of gold
- How many paper pounds does it take to purchase a given quantity of gold?
- Increase in the market price of gold signals devaluation of paper pound

The agio

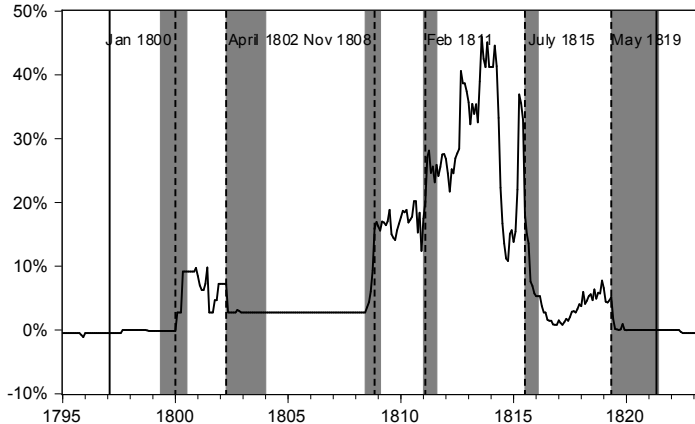
- Data set spans the years 1718-1873
- Castaing's Course of the exchange
 - monthly until 1810 (Neal, 1993)
 - twice a week afterwards (Boyer-Xambeau et al., 1994)

Fiscal sustainability and the value of money - data (3)



Fiscal sustainability and the value of money - results (1)

The agio, monthly data, January 1795 to May 1823



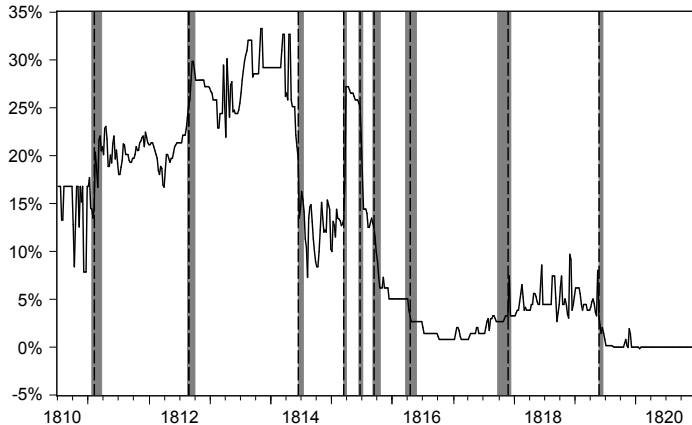
Fiscal sustainability and the value of money - results (2)

Table : Break dates, monthly data, January 1795 to May 1823

+	-
Jan. 1800, Napoleon 1st Consul	April 1802, Treaty of Amiens
Nov. 1808, fall of Spain	July 1815, Napoleon surrenders
Feb. 1811, battle of Gebora	May 1819, Peel's Act

Fiscal sustainability and the value of money - results (3)

The agio, daily data, July 1810 to December 1821



Fiscal sustainability and the value of money - results (4)

Table : Break dates, daily data, July 1810 to December 1821

+	-
8 Feb. 1811, Gebora and Badajoz	17 June 1814, Treaty of Paris (1)
25 Aug. 1812, American war	17 June 1815, Waterloo
17 March 1815, Napoleon enters Paris	15 Sep.1815, Treaty of Paris (2)
28 Nov. 1817, Political upheaval	16 April 1816, Currency Reform
-	25 May 1819, Peel's Act

Outright default very unlikely

- Long history of orderly public finances (North and Weingast, 1987; Sussman and Yafeh, 2006)
- Political economy (Dickson, 1967; Stasavage, 2007)
- Credibility essential for war finance (Bordo and White, 1991)

Devaluation induced inflation

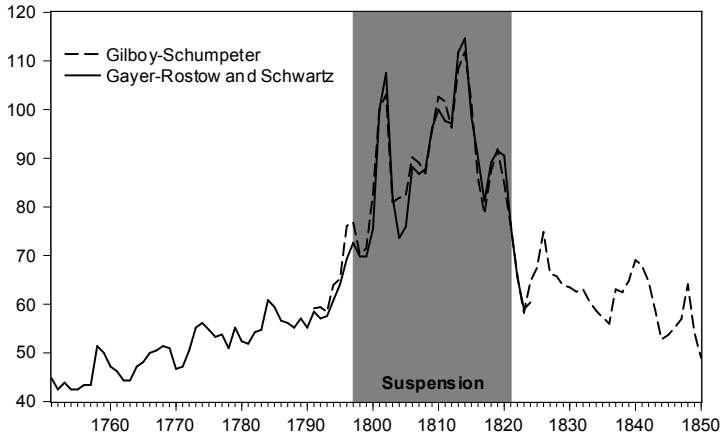
- First long suspension of the gold standard; lively discussion around resumption (Kindleberger, 2000)
- Mutualization of war losses
- Welfare losses for people lacking democratic representation

- War-related/political events affect expectations regarding public debt and (asset) prices
- Fluctuations of interest rates and (asset) prices caused by inflationary expectations
- Relevant results: effects of mounting fiscal pressure on inflation in a fiat currency regime with flexible exchange rates

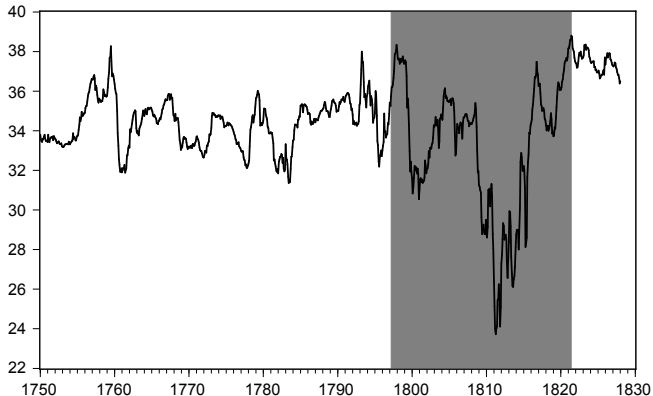
Thank you for your attention

Course of events - The onset and the Bullion Report (2)

Price indices, 1750 to 1850



Exchange rate on Hamburg: Schilling per Pound Sterling,
sight, 1750 to 1830



A famous absentee: the battle of Leipzig, 16-19 October 1813

- Ex post historiography has posited that the battle sealed Napoleon's defeat
- Does not show up as a break-point
 - French defeat was largely anticipated
 - Uncertainty regarding how much of Napoleon's army had survived
 - Announcements that budgetary efforts needed to continue
- When accompanied by real-time sources, break-point procedure yields results that capture contemporaries' perceptions

Largely anticipated French defeat

- "In point of fact they (the French) have, for the most part, been compelled to abandon the right bank of the Elbe; and the attempt, already thrice repeated, of penetrating into Bohemia, has every time had no other effect than the discomfiture and destruction of the troops employed.
All accounts agree in stating, that the French army in the Saxon Erzgebirge is a prey to the most dreadful privations; that they daily, from want of forage, lose hundreds of horses; and that, the men, to satisfy the cravings of hunger, are obliged to have recourse to horse flesh." *London Gazette, 19-23 October 1813*
- "We feel little apprehension for the consequences. The chances of war are, indeed, proverbially uncertain; but neither his 160,000 men, nor his imperial title, nor his military talents, affect us with the slightest doubt as to the result of a conflict." *Times, 21 October 1813*

Uncertainty surrounding French strength

- "It is difficult to calculate the diminution of the Tyrant's force, produced by these three days of heroic achievement." *Times*, 4 November 1813
- "The extent of the result of this important day cannot as yet be ascertained. Near half a million of soldiers fought in this battle, probably one of the most extensive and most generally engaged that ever took place, at least modern history." *Dispatch from General Viscount Cathcart, dated 19 October; published in London Gazette, 23 November*
- "The force of Bonaparte, as he retired on the great line of his communications, was probably augmented by troops at Erfurt, and other places on its march, and in his battles with General Wrede, he seems to have brought forward seventy or eighty thousand men, a force much beyond what we estimated him to possess, after his various losses." *Dispatch from Lieutenant General Charles Stewart, dated 11 November; published in London Gazette, 24 November*

Need to continue martial and budgetary efforts

- "I cannot but deplore most deeply the continuance of this extended warfare, and of all those miseries which the insatiable ambition of the Ruler of France has so long inflicted upon Europe.

The restoration of that great blessing upon principles of justice and equality has never ceased to be my anxious wish; but I am fully convinced that it can only be obtained by a continuance of those efforts which have already delivered so large a part of Europe from the power of the enemy." *Prince Regent's opening speech of Lords Sitting, 4 November; published in London Gazette, same date*

- "... it is not yet time to lay aside our arms. The enemy is defeated; he is humbled beyond any former period; but he may, he will, rise again, should the Germans prematurely imagine that they may take rest. It ought not to be concealed, that for a time to come, ample sacrifices, as well as further efforts of our long-tried valour, are indispensable." *Letter from the Privy Councillors of the King of Great Britain, 4 November*