DOI: 10.1111/ehr.13191

THE ECONOMIC HISTORY REVIEW

ORIGINAL ARTICLE

Not an ordinary bank but a great engine of state: The Bank of England and the British economy, 1694–1844

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Abstract

From its foundation as a private corporation in 1694, the Bank of England extended large amounts of credit to support the British private economy and to support an increasingly centralised British state. The Bank helped the British state reach a position of geopolitical and economic hegemony in the international economic order. In this paper, we deploy recalibrated financial data to analyse an evolving trajectory of connections between the British economy, the state, and the Bank of England. We show how these connections contributed to form an effective and efficient fiscal–naval state and promote the development of a system of financial intermediation for the economy. This symbiotic relationship became stronger after 1793. The evidence that we consider here shows that although the Bank was nominally a private institution and profits were paid to its shareholders, it was playing a public role well before Bagehot's doctrine.

KEYWORDS

Bank of England, national defence, state-building institutions

JEL CLASSIFICATION

H41, N13, N23, N43

> 'The stability of the Bank of England is equal to that of the British government … [The Bank of England] acts, not only as an ordinary bank, but as a great engine of state' (Adam Smith, *The wealth of nations*, p. 408)

During the long eighteenth century (1688–1815), Great Britain's engagements in successive bouts of warfare led to the formation of a powerful state, supporting (and supported by) a framework of 'private' institutions that eventually promoted its precocious transition through the first industrial revolution. Among the most important of these institutions was the Bank of England, founded in 1694 during King William's War (1689–97).[1] The Bank supplied successive governments with the flows of liquidity required to wage war. It supported the formation of the state and the building of fiscal capacity by providing the short-term liquidity necessary to deal with military crises. Without the Bank, these crises would have compromised Britain's capacity to wage warfare, which in turn would have diminished long-term economic progress. By fostering the development of a more monetised economy, the Bank also made it easier for the state to collect taxes. Indirectly, it also encouraged overall financial intermediation for the private economy and contributed to the progressive emergence of an investment-friendly environment. However, it never became a systematic source of funds for the government in a way which would have vitiated the government's commitment to price stability over the long run. The symbiotic relationship between the Bank of England and the British state was advantageous to the emergence of the industrial revolution.

In this paper, we consider the role of the Bank of England's support for the state and the economy.[2] We elaborate upon the evolution of the institutional framework without which the money market could not have supported the British government's systematic military successes over the eighteenth century.[3] The culmination of these efforts was victory in the most protracted and costly conflict of all, namely the French Revolutionary and Napoleonic Wars, which witnessed a new and more radical form of monetary policy.[4]

We argue that there were three key ways in which the Bank provided support to the state and the private economy. First, it played an important role as debt manager, helping the government to raise large amounts of credit from private investors.[5] Second, it provided short-term finance to the government by directly buying unfunded debt, particularly in the form of Exchequer and Navy bills. It also lent to private investors, many of whom then invested in government securities. Thus, actions of the Bank leveraged the financial system. Third, it increased the money supply, which not only benefited the private economy – by extending the tax base – but also made a more monetised economy easier to tax.[6]

Our analysis differs from the existing literature along several dimensions. In their comparative analysis of the finances of Britain and France during the late eighteenth century, Bordo and White focus on the credibility of British government debt. Their thesis is that Britain was able to borrow

[1] The semi-public character of the Bank's 'private' lending is emphasised by Kynaston, *Bank of England*, p. 44.

[2] The converse was also the case, but the fact that the state supported the Bank is better understood in the literature. In fact, their reputations were jointly determined, as suggested by the above quotation from Adam Smith. Other contemporaries, such as Baring, *Observations*, and Colquhoun, *Treatise*, also stressed the importance of the Bank of England for the success of the British economy, state, and even empire.

[3] The American War of Independence was Britain's only important defeat over a century of warfare.

[4] We study the Restriction period of 1797–1821 in detail in a complementary paper, O'Brien and Palma, 'Danger'.

[5] O'Brien, 'Government revenue', pp. 99–168.

[6] Palma, 'Money and modernization'; Bonfatti et al., 'Monetary capacity'.

heavily and at lower interest rates than France because of the higher credibility of its policies: 'Britain's continuous parliamentary form of government, in which debt holders exercised considerable influence, was able to issue a massive quantity of debt and leave the gold standard with the promise of eventual redemption'.[7] Recently, several scholars have, however, argued that institutional commitment designed from above was not sufficient for credible commitment from the government. The Bank worked as a guarantor of responsible governmental action, contributing to the formation of 'credible commitment' by the state.[8] This mattered because, for government commitment to work, the right institutions needed to be in place at the micro level, growing along pre-existing social and political lines towards collective efficacy.[9] This view finds support in the comparative experience of, for example, imperial Brazil, which despite having borrowed repeatedly without default, failed to develop the institutional foundations required for financial development.[10]

Hence, our conclusions differ in fundamental respects from the recent consensus with respect to the role of the state in crowding out economic growth during the eighteenth century.[11] The main difference results from the realisation that crowding out is a short-term, static effect. It is true that by borrowing liberally to wage warfare, the state did dry up some amount of liquidity. However, it does not follow that, in net terms, this slowed long-term aggregate economic growth. First, state borrowing itself encouraged, over a long period of time, the gradual development of an efficient system of financial intermediation, which eventually generated more liquidity. Second, in the context of a mercantilist international economic order, without the external warfare waged by the British state, the process of economic growth would have been slower. This is because military expenditure was not 'pure waste'. Instead, it was a means to secure external security, internal order, and imperial expansion.

I | HISTORICAL BACKGROUND

To understand how and why the Bank's support to the state mattered for economic growth, we must first discuss the mechanisms which suggest that the state's actions themselves mattered. Recent research programmes in economics and economic history have become more concerned with understanding the state's role in the construction and development of the institutions behind

[7] Bordo and White, 'A tale of two currencies', p. 304.

[8] Broz, 'Origins of central banking'; Cox, *Marketing soverign promises*, pp. 62–7; Kynaston, *Bank of England*, p. 21.

[9] Coffman, Leonard, and Neal, *Questioning credible commitment*; Murphy, 'Demanding "credible commitment"'. For a greater emphasis on 1688–9 as a discrete regime change, see Bogart, 'Glorious Revolution'; Pincus and Robinson, 'Glorious Revolution'; and Dimitruk, 'I intend therefore to prorogue'. Pincus and Robinson do recognize the difficulty of discerning 'the exact nature of the changes [brought about by the Glorious Revolution] that made the new set of institutions self-enforcing', p. 221.

[10] Summerhill, *Inglorious revolution*.

[11] Temin and Voth, 'Credit rationing', and isdem, *Prometheus shackled,* argue that the industrial revolution happened despite the policy actions of the British state, whose military spending crowded out private borrowing and slowed down economic growth. These authors contend that the frequent and costly wars engaged in during the eighteenth century were responsible for the slow accumulation of capital (broadly in line with Williamson, 'British growth'). Note, however, that Temin and Voth, 'Credit rationing', pp. 345–6, and isdem, *Prometheus shackled,* p. 175, recognize in passing that they capture mainly short-term effects. Additionally, Ventura and Voth, 'Debt into growth', argue that high levels of debt in the eighteenth century favoured growth through the formation of a market for sovereign debt – one of several mechanisms that we emphasize in the present paper.

modern economic growth.[12] The reappearance and widening of this discussion in political economy has moreover been accompanied by a comparative (and quantitative) element which is to be welcomed.[13] The study of the case of Britain remains central, however. While England's institutions were weak by European standards until the mid-seventeenth century, from that period and until well into the nineteenth century, their development was gradually sustained.[14] British institutions were eventually considered to be a superior ideal but difficult to replicate well.[15]

In England, before the creation of the Bank, Downing's efforts to transform the Exchequer into a state bank 'broke down on certain hard facts of English life … the graver handicap, confided to Pepys by Sir Richard Ford in August 1666 [was] "the unsafe condition of a bank under a monarch" … [this] was an objection which hampered the development of public borrowing for another generation'.[16] Once the Bank appeared, however, arguably 'no other institution contributed more to the stability of the Revolution settlement'.[17]

High levels of fiscal capacity mattered for economic growth because military provision is the ultimate public good. The Royal Navy provided external security for the British Isles and the expansion of their commercial and imperial interests abroad through continued victories over rival colonial ventures and native powers. External security combined with internal order are necessary conditions for the protection of property rights; 'credible commitment' to service public debt is impossible if a coup d'état or an invasion might lead to defaults.[18]

During the mid-seventeenth-century civil wars, and with further upswings during the eighteenth century, England developed comparatively high levels of fiscal capacity.[19] The state benefited from a fortunate geopolitical position and was financed through a mix of effective taxation and borrowing (figure 1). The advance in fiscal capacity supported a rapid increase in military expenditure in times of warfare (figure 2), which – through a 'ratchet effect' – supported a persistent expansion of the size of the state. After each war, the size of government was reduced again but to a level only somewhat higher than before.[20] The exception to this pattern was the French Wars of 1793–1815, after which high and increasing levels of expenditure became permanently much higher (figure 3). England's rising fiscal capacity could be seen through its growing naval power, measured, for instance, by the increasing number of warships available relative to other countries, especially the powerful ships of the line.[21]

State capacity promoted not only a stable domestic economy plus returns from the empire, but also frequent success in military interventions in continental Europe, which served British interests. These could be either direct military interventions or, more often, subsidies to British allies

[12] Besley and Persson, *Pillars of prosperity*.

[13] Dincecco, 'Fiscal centralization'; idem, *Political transformations*; Dincecco and Onorato, *Warfare to wealth*.

[14] Henriques and Palma, 'Comparative European institutions'.

[15] Cardoso and Lains, eds., *Paying for the liberal state*.

[16] Roseveare, *Financial revolution*, pp. 18–19.

[17] Roseveare, *Financial revolution*, p. 40.

[18] This is one reason why, for instance, the Netherlands, when at risk of Spanish invasion, paid comparatively high interest rates, even though they had a less 'absolutist' form of government; Epstein, *Freedom and growth*.

[19] Karaman and Pamuk, 'Ottoman state finances'; Brandt, Ma, and Rawski et al., 'Divergence to convergence', p. 69; Costa, Henriques, and Palma, 'Anatomy of a premodern state'. Pincus and Robinson, 'Glorious Revolution', in their defence of the Glorious Revolution, emphasize parliamentary sovereignty and the Whig programme of modernization, but still recognize that 'the English fiscal military state has been growing by leaps and bounds since the 1640s', p. 211.

[20] O'Brien, 'Political economy'; O'Brien and Hunt, 'England'.

[21] Rodger, *Command of the ocean*.

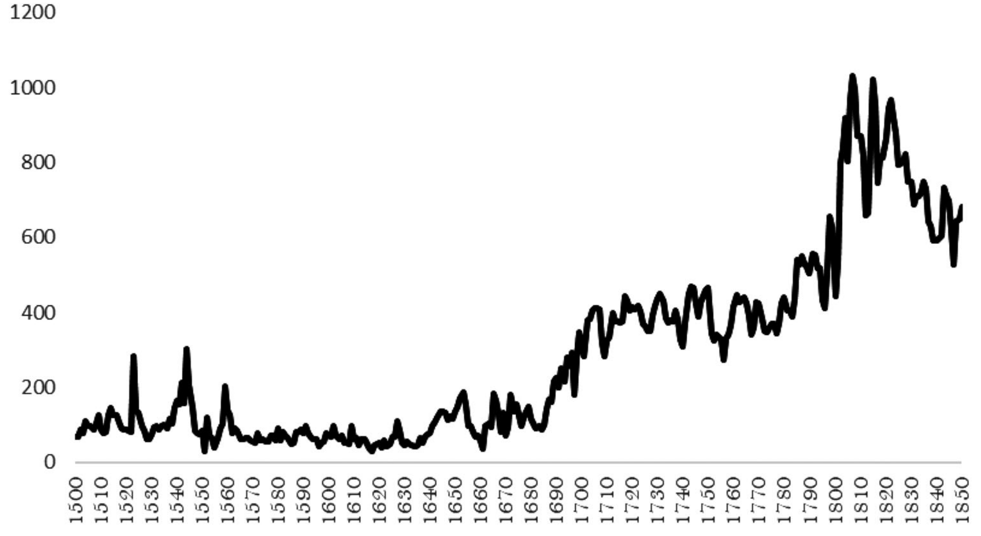

FIGURE 1 England's fiscal capacity in real terms (index, with 1500–4 revenues average = 100). *Source*: Based on fiscal data from Karaman, Pamuk, and Yildirim-Karaman, 'Long run patterns', which in turn is based on total revenues of the English Crown/Commonwealth for 1500–1749 from O'Brien and Hunt, 'Total revenue', isdem, 'Rise of a fiscal state', and isdem, 'England', on central government revenue of Great Britain for 1750–1801, and that of the United Kingdom for 1802–1850 from Mitchell, *British historical statistics*. The latter were similar to those of Great Britain because Ireland sent almost no net revenue to the Exchequer. Population data (for England until 1749 and Britain thereafter) from Broadberry et al., *British economic growth*. *Note*: The underlying unit is days of standard consumption baskets. We divided tax revenue in grams of silver by the cost of Allen's respectability basket (Allen, *British industrial revolution*) and by population. In this figure, revenues include taxes but not borrowing; otherwise, the level would be considerably higher during the Napoleonic era.

by taking advantage of reputable bills of exchange. This was, for instance, how Britain subsidised Prussia during the Seven Years' War. During the Napoleonic Wars, subsidies were sometimes paid in bullion made available by the substitution of domestic currency with Bank of England notes.

II | THE BANK OF ENGLAND AS AN ENGINE OF THE STATE

While Britain's exceptional fiscal state allowed for an unusual capacity to service sovereign debt, the monetary and fiscal sides of state finance were not separable.[22] The monetary side of state-building remains poorly understood. Previous work has emphasised the roles of taxes and public borrowing in supporting state-building, but less attention has been paid to explaining the timing, motivation, and feasibility behind the supply of credit advanced from the Bank to the state, its wider role and consequences for the fiscal capacity of the state, and its influence on the outcome of wars, especially the French Revolutionary and Napoleonic Wars.

In this section and the next, we document the interactions of Britain's financial institutions, in particular the Bank, with internal trade and external commerce. We bring into perspective

[22] Sargent and Wallace, 'Unpleasant monetarist arithmetic'; Sims, 'Simple model'. See also Bonfatti et al., 'Monetary capacity'.

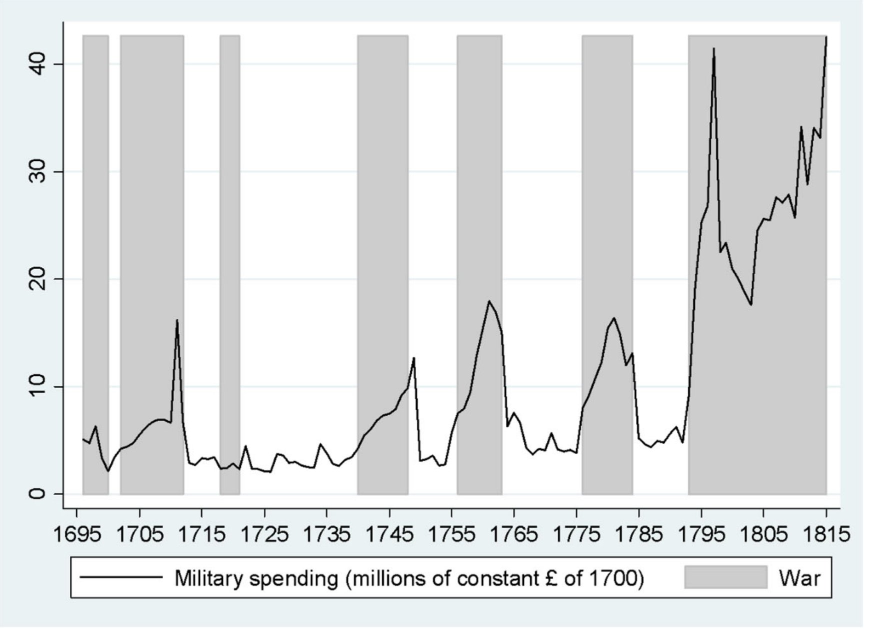

FIGURE 2 Military spending (army plus navy) during 1696–1815, at constant 1700 prices. *Sources*: For naval and military spending, O'Brien and Duran, 'Total factor productivity'; for the deflator, Broadberry et al. *British economic growth*. *Notes*: Naval spending equals parliamentary grants plus borrowing by the Navy, plus debt and transport provided by the Navy, added from the records of the Army. Army spending equals total grants (grants for army and ordinance services, including militia) plus transport (added to the Navy), plus votes of credit, subsidies, and pay of foreign troops, and Irish military expenditure (Army, ordinance, and votes of credit). Shaded areas correspond to years of war [Colour figure can be viewed at wileyonlinelibrary.com]

the support that the Bank accorded to the operations of an exceptionally powerful fiscal state and its strategies for servicing British economic interests at home and overseas.[23] We highlight three separate roles that the Bank played as an engine of the state and the economy. First, it managed the sovereign debt. This made it a trusted monitor of principal–agent transactions that made effective the implicit commitment mechanism of the state. Second, it leveraged the financial system. The Bank's lending to private customers (mainly in London) had consequences for state finance as well because it enabled borrowers with discount facilities at the Bank to take advantage of arbitrage opportunities to re-invest in government debt.[24] Third, it monetised the economy, with implications for the tax regime that emerged. Hence, overall the Bank not only reinforced, but also amplified, the effectiveness of appropriating taxes, in particular the excise, which was at the heart of Britain's rising fiscal capacity. Its monitoring of tax collection across the country was hence complementary to its provision of deposits to government accounts and domestic outpayments.[25]

[23] Elsewhere in Europe and China, insufficient fiscal capacity led to underinvestment in public goods and lower rates of growth and structural transformation; see Epstein, *Freedom and growth*; O'Brien, 'State formation'; idem, 'Merchants and bankers'; or Brandt, Ma, and Rawski, 'Divergence to convergence'.

[24] We further consider lending from the Bank to the private sector in section III.

[25] Quinn, 'Securitization'.

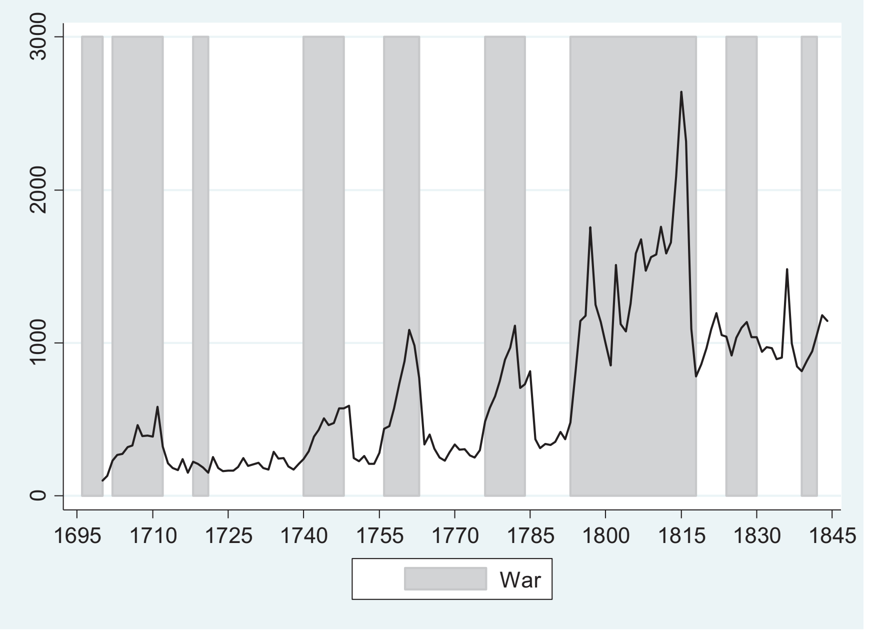

FIGURE 3 Government expenditures (public administration and defence) and war, 1700–1844 (unit: real index, 1700 = 100). *Source*: Broadberry et al., *British economic growth* [Colour figure can be viewed at wileyonlinelibrary.com]

We also provide in this section an account of the Bank's institutional evolution in relation to the resolution of successive crises. We discuss, for example, how the Bank's contribution to the French Wars had long-lasting effects on the money supply and the economy.[26]

The Bank's role as manager of the sovereign debt began in 1694 when its capital was a major part of the existing sovereign debt. That role grew in subsequent years as the pressing needs of war finance repeatedly arose and required innovative responses by the Bank. Over time, and especially around each re-chartering, the Bank increased its investment. The Bank also had an increased managerial role in overseeing the payment of interest on most issues of sovereign debt that occurred after the South Sea Bubble.[27] The dominance of the Bank of England increased after the mid-eighteenth century, when it became the dominant institution managing nearly all long-term sovereign debt.[28]

The Bank met the state's needs for ready cash while loans and taxes were coming into the Exchequer. Without this liquidity, day-to-day expenditures by all departments of state, particularly the Army and the Navy, would have had to wait for receipts from taxes and loans. This was another key to the success of state formation and the rise of a fiscal–naval state and supports our viewpoint that the Bank contributed towards military victories at critical stages of Britain's engagement in mercantilist warfare.[29]

[26] By comparison, the earlier Bank of Amsterdam (Wisselbank) was not a bank of issue, and did not buy government securities or operate a discount window (Quinn and Roberds, 'Bank of Amsterdam', p. 265). It was insolvent by 1790.

[27] Carlos and Neal, 'Micro-foundations'.

[28] Quinn, 'Securitization'.

[29] Roseveare, *Financial revolution*, p. 37.

State-building depends on the government's ability to collect taxes, and it is considerably more efficient to collect them in money than in kind.[30] By promoting a more monetised and liquid economy, the Bank – as well as other London and provincial banks that were subject to policies pursued by the Bank – contributed to facilitating tax collection. Since the Bank's credibility, and hence capacity, to have its notes accepted in turn depended on the government's fiscal base, these links can be represented as another channel of endogeneity between the Bank's actions, its credibility, and the formation of fiscal capacity.[31]

Nevertheless, it is naïve to suppose that monetary expansion was driven by fiscal dominance, because the Bank's actions were not ultimately controlled by the government, unlike Antipa suggested.[32] Furthermore, it was the policy of the Treasury to discourage the Bank from restricting credit to the private sector to accommodate the state. It is true that it might have been politically difficult for the Bank to deny credit to the government during military emergencies, but it was also often in the interest of the Bank to comply with suggestions from the Treasury, regardless of when or whether there was a charter renewal approaching.[33] A close look at the historical record, in fact, shows numerous instances when the Bank of England denied credit to the government, even in times of warfare.[34] The Bank's consistent support for the state's strategic policies is moreover implicit in the efforts made by Tories – who were in favour of a blue-water policy only and minimal interference in continental affairs – to undermine it by creating a rival Land Bank.[35]

As mentioned, the Bank of England supported the state by providing it with the credit required for national defence. First and foremost, it provided liquidity to the government needed for the day-to-day expenditures which invariably rose during wartime. It did so on bills contractually repayable over short periods of time. While the Bank's funding was not typically a large part of the government's revenue, it was a source of funding that did not dry up at critical times, unlike private sector funding.[36] Furthermore, by promoting financial deepening for the economy overall, the Bank helped generate higher income levels, which in turn led to higher fiscal capacity for

[30] Bonfatti et al., 'Monetary capacity'.

[31] Capie, 'Money and economic development'.

[32] Antipa, 'Fiscal policy'. See O'Brien, 'Government revenue' (chapters 4 and 6) and O'Brien and Palma, 'Danger'. Antipa's criticism is not new. David Ricardo and others castigated the Bank for being responsible for overexpanding credit which in turn would have led to inflation and instability in the value of sterling. This criticism is unwarranted. As O'Brien, 'Merchants and bankers', p. 277, argued, the French Wars, a 'protracted and costly conflict (which left Britain as the hegemonic naval, commercial, and imperial power for more than a century after Waterloo) could have hardly been financed on the gold standard'. Wartime monetary policy on several occasions provided loans to the private sector, which was facing liquidity crises, and 'enabled merchants and manufacturers working for the export trades to invest heavily in stocks during the crisis years of 1793, 1797, 1799, 1807–8 and 1802–12'; O'Brien, 'Merchants and bankers', p. 276. The existence of accumulated inventories benefited merchants and manufacturers in periods when blockades were lifted, avoiding supply chain disruptions and later increased profits; O'Brien, 'Merchants and bankers', pp. 265, 268.

[33] Broz and Grossman, 'Paying for privilege'.

[34] Kynaston, *Bank of England*, pp. 16, 23, 34, 56–7, 79; Desan, *Making money*, p. 327; O'Brien and Palma, 'Danger', p. 403.

[35] O'Brien, 'Government revenue'; Pincus and Robinson, 'Glorious Revolution'.

[36] Borrowing from the Bank and mercantile companies did at times reach 80 per cent of state loans, though between 10 and 20 per cent is a more common figure for the eighteenth century taken as a whole; Quinn, 'Securitization'. However, these figures relate to direct borrowing from the Bank; certainly, the Bank also lent to individuals, who in turn lent to the State, as for the first two years of the Restriction period (and then from mid-1803 to late-1805), the Bank's discount rate was fixed at 5 per cent, while government bonds were paying more; Clapham, *Bank of England*. O'Brien and Palma, 'Danger', find that borrowing from the Bank of England to the state did not increase relative to coin supply in times of warfare until the 1790s. However, borrowing from the private sector did tend to decrease during war.

the government. As high fiscal capacity was essential for continued growth, there was a positive feedback loop between the Bank's actions and growth itself.[37]

The Bank's lending activities were primarily extended to the private sector. Nevertheless, during the eighteenth century, the share of total governmental debt directly held by the Bank of England could become large, although by an amount that is difficult to measure precisely.[38] In its relationship with both the state and the private economy, the Bank's macroeconomic weight cannot be gainsaid; during the eighteenth century, the percentage of national debt (directly) held by the Bank fluctuated between 5 and 20 per cent, typically staying above 10 per cent.[39] In turn, the national debt-to-GDP ratio experienced significant growth over the eighteenth century. It grew from a small amount in the early decades to the 1.5 threshold, which it crossed in the early nineteenth century. It then steadily decreased and only reached the same heights during the First World War.[40]

The Bank also had a role in leveraging the financial system. The discounting functions of the Bank went beyond allowing moneyed men to exploit arbitrage possibilities in the market for all forms of sovereign debt. Businessmen could also invest in country banks which were the equivalent of venture capital firms.[41] The 'discounter' bank model, compared with the older 'goldsmith' model, rose in importance over time, especially during the Restriction period.[42] There was also a shift towards acceptance banking.[43]

While the Bank's overall influence on the development of the state and the economy was, in net terms, positive, it is undeniable that there were missteps. For example, the resumption of the gold standard – at pre-war parity – led to errors which partly explain the crisis of 1825.[44] The creation of branches of the Bank in various ports and manufacturing centres in turn had mixed results.[45] Additionally, while Bank policy during the 1830s and early 1840s was more flexible than is commonly recognised,[46] the re-charter of 1844 led to mismanagement in dealing with the Irish Famine and the riots associated with Chartism.[47]

Another important role of the Bank – which was a bank of issue from the beginning – concerned monetising the economy. The silver and gold mines of the Americas played an important role in the monetisation of the western European economies from the sixteenth century, but these worked in complementarity, not substitution, to banknotes.[48] Monetisation stimulated not only

[37] Furthermore, notice that the state's high fiscal capacity itself meant that the Bank's actions were more credible, especially during times when the Bank's notes were largely backed by government debt; O'Brien and Palma, 'Danger'.

[38] While the value of debt which appears on the Bank of England balance sheet corresponds to (secondary or spot) market value, it is hard to know the equivalent amount of total outstanding governmental debt owed (that is, the nominal or issuing value).

[39] Quinn, 'Securitization'.

[40] Hills, Thomas, and Dimsdale, 'UK recession', p. 280.

[41] Brunt, 'Rediscovering risk'.

[42] Gent, 'Abundance and scarcity'.

[43] Sissoko, 'Becoming a central bank'.

[44] Neal, 'Financial crisis'.

[45] Fourteen new branches were opened before Peel's Act of 1844, 'mostly in commercial towns but also often at the insistence of the government and the Navy to facilitate payments to and from Naval Yards'; Ugolini, *Evolution*, p. 66. See also Moss, 'Bank of England'.

[46] Matthews, *A study*, pp. 166–76.

[47] Baring, *Financial and commercial crisis*.

[48] Palma, 'Money and modernization'; idem, 'Real effects'.

commercial activity, but also raised fiscal capacities.[49] Monetisation was symbiotic with rising taxation, and this was facilitated by the continuation of wartime cooperation between the Bank – which enabled, for instance, effective collection of the excise nationally – and the state. This gave the British state a permanent fiscal advantage over its European competitors, and the regressive nature of the excise explains why the public response was harder work and higher wages instead of repeated tax revolts.[50] In fact, prominent Americans involved in creating the first Bank of the United States took seriously the leading example of the Bank of England; William Bingham convincingly explained to Hamilton the role of a national bank in raising a nation's fiscal capacity, surely based on his extended visit to England at the end of the American Revolutionary War, before Hamilton's 1790 report on public credit.[51] During the Restriction period, in particular, the Bank's role in monetising the economy and supporting the state would become essential.[52]

The Bank's role evolved over time. Prior to 1844, the Bank went through several distinct periods. First, there was its original war-finance, chartered-company phase.[53] Second, the fallout from the South Sea Bubble led to a dominance not just over the rest of the private financial system, but also over the other chartered companies. There was a period of building up on these trends, highlighted by a developing oversight of the whole financial system, and the Bank had a crucial role in the resolution of the struggle for control of the East India Company (EIC) in the 1760s and 1770s.[54] The learning process undergone by the Bank over time influenced how it handled the extreme pressures of 1793–1815. The Restriction period (1797–1821) witnessed key transformations in the way the Bank operated, many of which continued into the reinstated gold standard. Finally, there were important milestones during and following the country banks crisis of 1825–6, prior to the move to the Bank Charter Act of 1844.[55]

It is beyond the scope of an article of this size to go over all these events in detail, but we now discuss the period 1793–1821, which was in many ways critical.[56] The time between the founding of the Bank in 1694 and the suspension of specie payments in February 1797 provides us with several instances for analysing the interplay between monetary and fiscal authorities, but none as consequential as the Restriction period. Departure from convertibility, accompanied by innovations to a highly effective fiscal constitution, ensured a plentiful supply of revenue to fund the kingdom's foreign, imperial, and strategic policies, both in wartime and thereafter. It is difficult to see the long-run development of the financial service industry and its importance to the economy as a whole without referencing the fiscal and financial operations of the state, which gradually

[49] Bonfatti et al., 'Monetary capacity'.

[50] Of course, not all excise taxes were regressive, as for instance those on the sale of brandy or silks; O'Brien, 'Triumph and denouement'.

[51] Wettereau, 'New light'. We thank Larry Neal for bringing this point to our attention.

[52] O'Brien and Palma, 'Danger'.

[53] Kleer, *Money, politics and power*.

[54] The loan given by the Bank to the EIC in the context of the Regulating Act happened after the Bank had suspended its hitherto seasonal funding of the EIC.

[55] The 1825–6 crisis was one of two major (i.e. systemic) banking crises of the last 200 years, see Turner, *Banking in crisis*, p. 7. Nonetheless, the Bank lent generously during that crisis in accordance with the principle that internal drains owing to the failure of confidence 'called for free lending by the Bank to banks and other houses which might be illiquid but were not insolvent'; Matthews, *A study*, p. 172. In the decades following 1825, the Bank of England's opposition to limited liability in banking may have been owing to strategic self-interest, but also 'underpinned the stability of the UK banking system'; Turner, *Banking in crisis*, p. 214.

[56] Our discussion here complements that in O'Brien and Palma, 'Danger'.

intensified as they did during the six episodes of war of the preceding century. Without the advances to the state made possible by paper money and the ability to suspend cash payments, Britain might well have lost the war against Revolutionary and Napoleonic France, with unpredictable consequences for the first industrial revolution.

Those who lived through the French Wars of 1793–1815 were aware of the critical contributions made by the Bank of England to Britain's military success. An 1803 print by James Gillray shows Napoleon feasting with his officers at a table where models of buildings representing various British institutions are depicted. The state is represented by the Tower of London and St. James's Palace. On the head of a bishop, a label reads 'Roast Beef of Old England'. Conspicuously and at the centre of the image stands an oversized Bank of England.[57]

The Bank's contribution to the war effort against France was multi-dimensional: it consisted of large-scale issuance of paper notes, the managing of both the national debt and the government's rising day-to-day demands for liquidity, the continued provision of short-term loans (discounts) to the government, the disinterested management of the government's loan process, and finally, the inventory management and storage facilities provided for merchants.[58] By the end of the war, 'the structure of the (still privately owned) Bank of England contained many of the essential components of modern central banks'[59].

The 1793–1815 war – interrupted only briefly by the short-lived Peace of Amiens – led to a new monetary regime for the realm. Up to the last decade of the eighteenth century, there is no evidence of abnormal levels of banknote expansion from the Bank.[60] Nonetheless, the asset side of the Bank's balance sheet indicates that periods of war were usually associated with increased lending to the government in real terms (figure 4).[61] Following each upswing in lending, levels did not return to the previous status quo (i.e. ratchet effects occurred). The outstanding exception to this pattern was 1793–1810, when lending declined in real terms, briefly interrupted by stagnated lending around the time of the Treaty of Amiens. Once the war against Napoleon intensified, the Bank's purchases of government securities did so as well, with assets consequently jumping from less than £20 million in 1810 to over £32 million in 1813 in real terms (i.e. in constant 1700 prices).

The Bank's loans to the government expanded in times of war and behaved in a way that paralleled fiscal capacity.[62] However, these loans never turned into conventional debt monetisation.[63] At the end of a long history of prudence, when the state's demands for both credits and loans intensified to levels never before experienced, the economy was well prepared to make the transition to inconvertible paper, which was indispensable for the conduct of more expensive warfare.

[57] See figure A3 in the online appendix. According to several accounts, 'Napoleon boasted in June [1803] that he needed only three days of fog to be master of London, of Parliament, of the Bank of England'; Gillray, 'Hand-writing'; see also Watkin, 'Review of Abrahamson'.

[58] Kynaston, *Bank of England*, p. 88.

[59] Roberds and Velde, 'Early public banks', p. 488.

[60] O'Brien and Palma, 'Danger'. In fact, in some periods of war, such as the American Revolutionary War period, the ratio of Bank of England notes-to-coin supply decreased.

[61] The Bank of England's balance sheet is available in Bank of England, 'Liabilities and assets'.

[62] O'Brien, 'Political economy'; Brewer, *Sinews of power*.

[63] A moderate amount of inflation did coincide with the last decade of the Restriction period, but it is by no means clear whether this was due to the actions of the Bank of England as argued by the bullionists, old and new, e.g. Antipa, 'Fiscal policy'. See O'Brien and Palma, 'Danger', pp. 406–7. In any case, even if to some extent it was, the words of Clapham have stood the test of time: 'No one said frankly – accept a measure of inflation for victory's sake'; Clapham, *Bank of England*, p. 32.

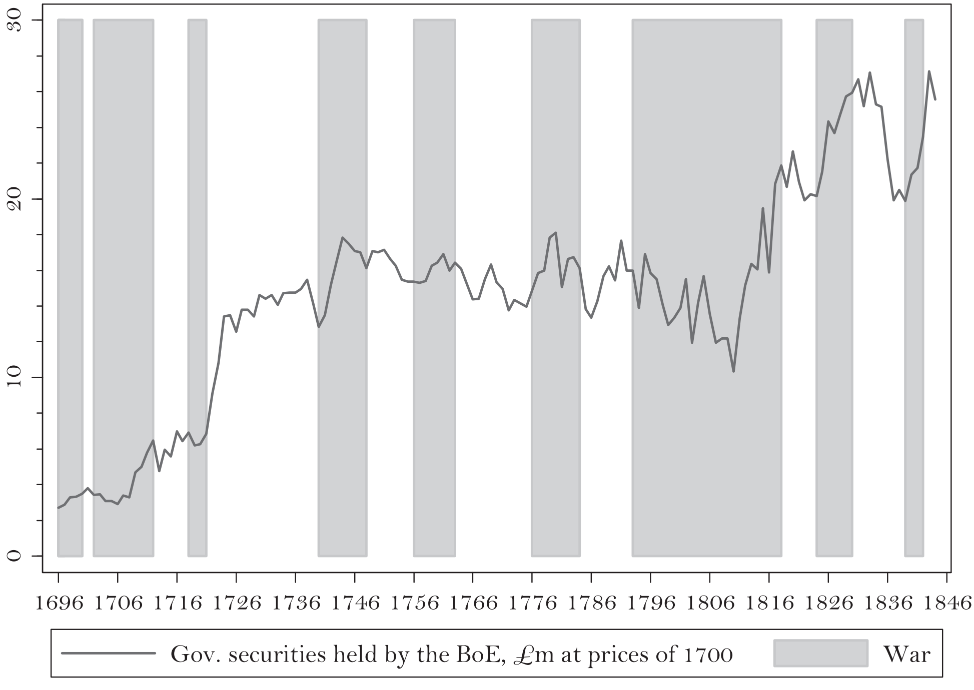

FIGURE 4 Total government securities held by the Bank of England, millions of pounds in constant 1700 prices. *Source*: Bank of England, 'Liabilities and assets', and for the deflator, Broadberry et al., *British economic growth*. *Notes*: Total securities include government debt plus other government securities held by the bank

Limited access to bullion, coupled with the continuation of flexible support for the demands from the private economy, meant that the paper pound was well received and turned out to be politically powerful from a military standpoint.[64]

The Bank's reputation, accumulated over the eighteenth century, was critical for the success of the Restriction period of 1797–1821. Already in 1745, the Bank had been saved from a potential run emanating from the threat of a Stuart restoration through 'a proclamation by the merchants of London, that they would accept and encourage payments in bank notes'.[65] This proclamation illustrates the importance that merchants attributed to the Bank's activities for their own operations. A similar – and longer lasting – proclamation was issued in 1797.[66] Indeed, '[T]he Bank was in fact an organ of the merchants, who placed their trust firmly in it'.[67]

The success of the Restriction was due to the Bank's surprisingly high level of autonomy from the government. Although the Bank depended on the state to have its charter renewed, it could

[64] O'Brien and Palma, 'Danger'. According to one authority, '[Bank of England] notes were considered by merchants to be a means of payment equivalent to coin; this confidence of merchants was the most important determinant of the Bank's strength'; Vilar, *A history*, p. 281.

[65] Vilar, *A history*, p. 281.

[66] O'Brien and Palma, 'Danger'.

[67] Vilar, *A history*, p. 311.

and did refuse credit to the state.[68] Thornton, in his justly famous 1802 essay, argued that the Bank of England's independence and power to resist the government provided important reasons for the success of the paper pound, and in particular, the resistance to any wild issues of currency. The two other reasons that he gives are cultural: English 'common sense' and 'spirit of stability', as well as the fact that England was wealthier than France, which justified a higher demand for fiat money.[69] He did not consider the reverse causality which we emphasise here: the role of the Bank's actions as an engine for the growth of the British economy.

Despite the policy changes of the 1820s and the following decades – the return to gold, restrictions on the Bank, limitations on joint-stock banking – the financial policy innovations of the 1797–1821 Restriction period provided a permanent boost for the British economy. These policies were supported by the diffusion of trust in the Bank among investors and the public in general, leading to a permanent shift towards a paper (albeit not fiat) money system.[70] This in turn helped the second phase of industrialisation (e.g. railways), which is helpful in understanding why this phase was more dynamic than earlier ones.[71]

III | THE BANK OF ENGLAND AND THE BRITISH ECONOMY

The Bank's actions promoted the financial development of the overall economy. On theoretical and empirical grounds, research suggests 'a positive first order relationship between financial development and economic growth: an efficient network of financial institutions reduces transaction and informational costs, mitigates risks, monitors firms, mobilises saving and facilitates trade'.[72] Although technical and organisational innovations undoubtedly facilitate development in the financial service industry, other factors, including a country's legal and political system, operate to promote its expansion, integration, and efficiency at critical stages in the growth process. Thus, it remains important to understand the evolution of the financial system over time and to comprehend how the financial activities of the state, operating in close cooperation with the Bank, generated benign outcomes for the long-term growth of the economy.

Within a decade of the Bank's foundation in 1694, most substantial traders in London were using (or considering using) Bank of England notes, drawing accounts, and discount facilities.[73] Banknotes, in particular, 'provided an extremely convenient and relatively safe way for merchants, bankers, and wholesalers to settle bills of exchange, notes, and other debts, including their debts to customs and excise'.[74] From 1700, the Bank's advances were offered to counterparties at pre-specified conditions upon the deposit of gold ingots, eventually turning the Bank into the world's gold market-maker.[75] However, prior to the 1790s, the Bank did not expand its money supply in

[68] This happened, for instance, in 1783; see ibid., p. 286. See also O'Brien and Palma, 'Danger', p. 403.

[69] Thornton, *An enquiry*.

[70] O'Brien and Palma, 'Danger'. See also Roberds and Velde, 'Early public banks', p. 488, who state that there was a 'shift in the popular conception of money, from something that was tangibly bound to precious metal, to something more abstract in nature'.

[71] Crafts and Harley, 'Output growth'; Broadberry et al., *British economic growth*.

[72] Levine, 'Financial development'.

[73] As a result of goldsmith banking, an interbank clearing system was already present in London prior to the Glorious Revolution; Quinn, 'Goldsmith banking'.

[74] Price, 'Discount activity', p. 92.

[75] Ugolini, *Evolution*, p. 232.

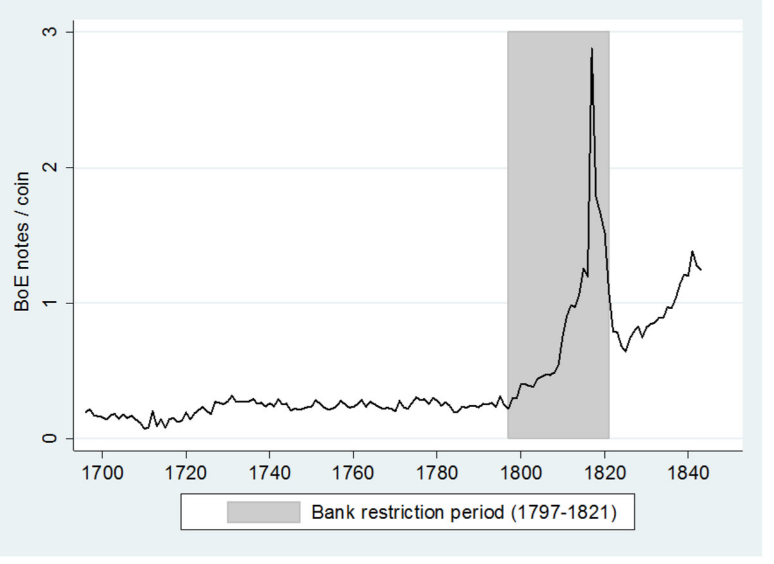

FIGURE 5 Ratio of Bank of England notes-to-coin supply. *Source*: O'Brien and Palma, 'Danger', p. 405, based on Bank of England, 'Liabilities and assets', and Palma, 'Reconstruction'. *Note*: If we instead used only notes in circulation with the public in the numerator and removed coin held by the Bank from the denominator, the picture would be qualitatively similar, but the magnitude of the rise would not be as large (there was a rise in Bank notes retained inside the Bank from the early 1810s up to 1844). At the same time, the Bank's expansion of its notes facilitated the expansion of private country banknotes which we do not include in the numerator [Colour figure can be viewed at wileyonlinelibrary.com]

tandem with warfare, in contrast to what happened with taxes or the size of government. Nevertheless, as a response to the extraordinary threat of the French Revolution, and subsequent overseas events, from 1789 to 1821 per capita M2 increased from £5 to £8 in real terms, while per capita coin supply fell from £4 to £3 over the same period.[76] Before 1797, the Bank of England had operated five printing presses, but as early as 16 of March 1797, it had 16 presses employed day and night, plus 14 more planned to be added.[77] These actions were necessary to protect the private economy as well as the state. Contemporaries such as Thornton anticipated as early as 1802 the kind of arguments that Milton Friedman and Anna Schwartz would come to make, that is, that a fall in money supply would be damaging for the economy: 'A great diminution of notes prevents much of that industry of the country … from being so productive as it would otherwise be'.[78]

Upon suspension of convertibility by the Bank in 1797, financing continued at a renewed pace. Businessmen as well as the public trusted the newly issued banknotes, which for the first time became common as a means of payment. The events of the last decade of the eighteenth century led to a regime shift in the form of a decisive move towards an increased public role for the Bank. Once warfare was over, the increased liquidity stayed in the financial system, despite the full restoration of convertibility in 1821 (figure 5).[79]

[76] Palma, 'Reconstruction'.

[77] Kynaston, *Bank of England*, p. 83.

[78] Thornton, *An enquiry*, p. 119; see also Friedman and Schwartz, *Monetary history*.

[79] Gordon, *Political economy*.

Monetary transmission occurred as follows. Government borrowing affected the money supply and, in turn, the money supply affected the terms upon which the Treasury marketed public securities and the facility of doing so. If the Treasury borrowed directly from the Bank of England, through the issue of exchequer bills, the supply of reserve currency in circulation rose and created conditions for expansion of credit throughout the banking system. Whenever the banks expanded their liabilities, competition between the public and private sectors for loanable funds declined, and the Treasury found it easier and cheaper to borrow the funds it required. A plentiful supply of credit satisfied demands for liquidity and encouraged those with idle balances to speculate in government bills.

The Treasury sold public securities to middlemen – loan contractors – who normally operated with borrowed funds, and hence it is obvious why easy credit conditions would raise the level of demand for bills and bonds. As Sir Richard Carr Glynn, a London banker, observed, 'a want of cash forces Merchants and traders to sell out of the funds and obtain cash from people with money in the funds'.[80] Thus, whenever the Bank restricted the supply of its notes and deposits, either by forcing the Treasury into the market or by rationing discounts to the London business community, its policy produced a decline in the money supply which heightened competition between the public and private sectors for funds and forced up rates of interest. If the Bank's action also affected confidence, the pressure for liquidity could prompt a withdrawal of balances from banks by the public, thereby reducing the supply of loanable funds still further. Since changes in the liquidity of the London money market exercised such a powerful influence on the prices obtained by the Treasury for its securities, it is worth taking some time to clarify the principles upon which the Bank normally regulated advances to the state and the private sector.

Advances took the form partly of deposits but mainly of notes issued to the government and the private sector. The Bank could and did refuse to accommodate the Treasury, but effective control over its liabilities was also exercised in relation to credit granted to the private sector. This credit included discounts on bills of exchange and drawing and deposit facilities granted occasionally to individuals but more generally to the large city corporations such as the EIC, South Sea Company, and Hudson's Bay Company.[81] Bills of exchange constituted the most important private asset held by the Bank, but its regulations on discounting in the eighteenth century do not indicate that the Bank set out to attract clients. Only firms located in the capital could discount their bills. The privilege also required a director's recommendation, usually accorded only to well-established and solid businessmen. Bankers could not enjoy the facility nor, for example, could persons whom the directors disdainfully referred to as 'speculators'.

Rules on the kind of bills discounted appear to have been equally stringent, but by 1795 the practice had departed from the letter of the law. Bills discounted had to be for the purpose of industry or trade, of short maturity (one to three months), and for amounts above £50. Continuation loans could not be countenanced, and no firm could owe the Bank more than £3000 at any one time on inland bills of exchange. These rules and the higher rates of interest charged by the Bank suggest that the directors did not compete seriously with London bankers in the discount business. By the time of the French Wars, some 1200 to 1500 firms discounted with the Bank. Just under half of outstanding advances on bills of exchange in 1799 were to merchants engaged in foreign trade, and the remainder covered almost every other mercantile and manufacturing activity represented in London.[82] Even the Bullion Committee, so hostile to the Bank on other counts,

[80] Parliamentary Papers 1826 (3), 43.

[81] Clapham, *Bank of England*, pp. 204, 208.

[82] Clapham, *Bank of England*, pp. 124, 125, 129–30, 204, 205, 208, 215–6; Parliamentary Papers 1810 (3), 89, 95–8, 157 and 220.

noticed that 'the discount of mercantile paper is confined to paper of undoubted solidity arising out of real commercial transactions and payable at short fixed periods'.[83]

In turn, country bank notes circulated within fairly well-defined geographical areas and were employed for such payments as wages and purchases of local produce. Payments for goods and services traded between different parts of Britain generally took the form of bills of exchange drawn upon banks located in the capital.[84] Between the end of the Seven Years' War and 1793, the liabilities of the banking system increased, though they never achieved a position of dominance in the country's money supply. Bankers issued notes and created deposits in exchange for assets offered by those who wished to obtain acceptable purchasing power. Their ability to acquire assets and create liabilities is today regulated by the central bank, but until well into the nineteenth century, it would be incorrect to use a term as strong as 'control' to refer to the status of the Bank of England with respect to the economy's supply of money. The Bank's directors never claimed to exercise control, and the conflict of views among both contemporary and modern writers on the nature and degree of central direction has created confusion about the extent of the Bank's power over the eighteenth-century monetary system.[85]

We turn now to the private sector. The Bank was created not only to provide support for the government's war effort, but also, according to Wolfram and Pincus, to support manufacturers through the provision of low interest rate loans.[86] It is certainly the case that during the second half of the eighteenth century, there was great expansion of Bank lending to the private sector.[87] Booms in trade led over time to sharp increases in demand for additional currency, often leading to waves of bankruptcies due to low liquidity.[88] These would have been even more frequent had it not been for the Bank's support. The Bank took Bagehot-type actions in 1763 and 1772.[89] It was specifically identified, as early as 1797, as a 'lender of last resort' by Francis Baring, co-founder of the company which evolved into Barings Bank.[90] At times, the Bank did restrict credit, when this was seen to be in its own interest, but not usually owing to government interference.[91]

[83] Cannan, *Paper pound*, p. 46.

[84] Feavearyear, *Pound sterling*, p. 159; Joslin, 'London private bankers'.

[85] In the online appendix (sections A1 and A2), we provide further details on the Bank's relationship with the overall economy and the state, focusing on the money market, reserves management, and our position with respect to the crowding-out debate.

[86] Wolfram and Pincus, 'A proactive state?'.

[87] Ugolini, *Evolution*, p. 233.

[88] Feavearyear, *Pound sterling*, p. 163; Neal, 'Finance of business'.

[89] Kynaston, *Bank of England*, pp. 38, 51, 77–8; Kosmetatos, 'Last resort lending'; Lovell, 'Role of the Bank'. In an important article, Bignon, Flandreau, and Ugolini, 'Bagehot', describe how the Bank of England was engaging in such policies well before the time of Bagehot's writing. However, they claim that there was a 'policy of universal credit rationing before 1850', which is debatable despite the fact that intervention became more straightforward after the repeal of usury laws in 1833: Pressnell, *Country banking*, p. 76; Anson et al., 'Bank of England'; Kynaston, *Bank of England*; Kosmetatos, 'Last resort'; and O'Brien and Palma, 'Danger'. See also James, 'Panics'. More generally, the viewpoint that the Bank of England only began to accept its public responsibilities from the second half of the nineteenth century, together with an emphasis on its lender-of-last-resort role in line with Bagehot, appears in Goodhart, *Evolution*, pp. 45-6. Ugolini, *Evolution*, pp. 5–7, provides criticism and an updated discussion.

[90] Kynaston, *Bank of England*, p. 91. Sissoko, 'Becoming a central bank', argues that during the Restriction period, the Bank's operations were transformed as the Bullionist Controversy and the 1810 crisis led the Bank to acknowledge its duties to the public and restructure its discount policies to promote financial and monetary stability.

[91] During the eighteenth century, usury laws prevented the Bank from raising interest on discounts over 6 per cent until 1714, and 5 per cent thereafter. Hence, when the Bank wanted to reduce its discounting, it did so through credit

During the Restriction period, banknotes of small denominations were issued and became widely used and accepted.[92] Archival evidence collected from the Bank of England shows that even prior to the Restriction period, in 1792, most of the banknotes issued were of the lower denominations issued at the time, in particular £10.[93] In the subsequent years, the Bank began to issue £5, £2, and £1 notes, which could be used to pay salaries and became widespread in the economy.[94] In fact, this was true to such an extent that, as we document in the online appendix using new archival data, forgeries were more common for smaller denominations, which were commonly accepted and less likely to raise suspicions.[95]

Between 1819 and 1821, the Bank was forced to resume payments to negate expectations set up by the controversy surrounding the bullion debate.[96] Arguably, resumption was not the best policy, as was argued at the time by the Birmingham School, led by Thomas Attwood. This seems reasonable since modern economies run well on fiat money. However, the modern macroeconomics literature explains how central banks can be forced to take second-best actions when expectation traps are set.[97] Hence, resumption was probably politically unavoidable, but it was not inevitable or even desirable from an economic efficiency and welfare standpoint, especially at par – even if it had been repeatedly promised by ministers.[98]

Following a run on country banks in late 1825, Prime Minister Lord Liverpool implemented currency and banking reforms, which eliminated the smaller banknote denominations and allowed for the operation of joint-stock banks, except within a 65-mile radius of London. The expanded responsibilities of the Bank of England were intended to encourage its better management of the provincial credit markets, and while that had mixed results, provincial Bank branches took up local tax collection and other aspects of government business.[99] Bank of England branches established in Liverpool and Swansea complemented, rather than competed with, the existing private bank network, though this was less true for Birmingham.[100] There was, in fact, fast growth in the number of joint-stock banks established in England and Wales following the 1833 Charter Act, and they were central to the provision of fixed and working capital for trade and industry, especially in Lancashire, during the 1830s.[101] With the 1844 Charter Act, the government sought to reduce the Bank's 'discretionary' note-issuing powers by imposing a £14 million fiduciary limit, which made future crises more likely. The rationale was the government's misleading interpretation of the events of the 1790s. By 1847, when merchants, traders, and bankers were presenting a petition to the government against the Act, only a few defenders remained (see also figure A5 in the online appendix).[102]

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rationing and reductions in the maximum duration of bills acceptable for discount; Price, 'Discount activity', p. 96; Ugolini, *Evolution*, p. 234.

[92] Desan, *Making money*, p. 401; O'Brien and Palma, 'Danger'. Figure A4 in the online appendix illustrates how the Bank's policies were perceived to be expansionary at the time.

[93] Bank of England archive, C66, Cashier's department: Memorials, contracts, accounts for Parliament.

[94] O'Brien and Palma, 'Danger'.

[95] For details, see sections A3 and A4 of the online appendix.

[96] Gordon, *Political economy*; Hilton, *Corn, cash, commerce*; Kynaston, *Bank of England*, pp. 111–2.

[97] Chari, Christiano, and Eichenbaum, 'Expectation traps'.

[98] O'Brien and Palma, 'Danger', p. 402, fn. 31.

[99] Moss, 'Bank of England', p. 543.

[100] Ibid., p. 553.

[101] See also King, *History*; Ziegler, *Central bank*; Matthews, *A study*, pp. 192–8.

[102] Kynaston, *Bank of England*, pp. 142, 144, 146–7.

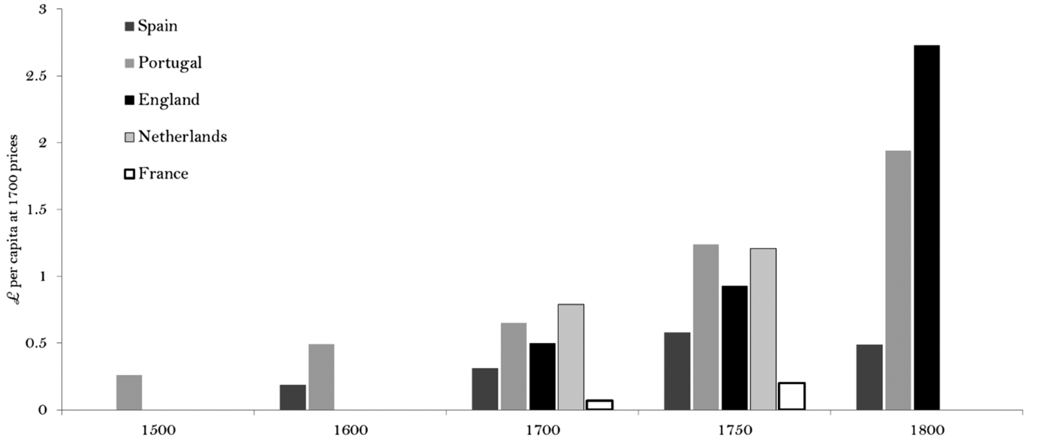

FIGURE 6 Per capita intercontinental trade, at constant pound per capita of 1700. *Source*: Adapted from Costa, Palma, and Reis, 'The great escape', p. 9

State capacity and empire-building had consequences for the market. One view about the rise of taxes during the eighteenth century is that it negatively impacted economic incentives.[103] But in the last few years, several papers and books have looked at the theoretical and comparative empirical foundations of the relationship between taxation, state-building, and economic growth. The conclusion of much of this literature is that states which cannot provide public goods owing to insufficient revenues from taxation are as much a barrier to modern economic growth as states in which a small elite abuses power in order to expropriate goods from the citizens.[104] As discussed elsewhere in this essay, the Bank contributed towards the buildup of state capacity. Britain rose from a comparatively unimportant colonial trader as late as the mid-seventeenth century to a major colonial power over the course of the eighteenth century. With the notable exception of the American Revolutionary War, England – and after the early eighteenth century, Great Britain – won or took net positive gains from every conflict in which it was involved during the period of 1651–1815.[105] A comparison of intercontinental trade data for England over time with that of other European powers shows that it became dominant during the eighteenth century (figure 6).[106] Returns from the empire promoted economic growth and structural change, as is sug-

[103] Clark, 'Debt'; idem, *A farewell to alms*; Allen, *British industrial revolution*, p. 5.

[104] Epstein, *Freedom and growth*; Besley and Persson, *Pillars of prosperity*; Besley, Ilzetzki, and Persson, 'Weak states'; O'Brien, 'Nature and historical evolution'.

[105] Wars before the French Revolution were not total wars with winners or losers, so even when it found itself on the losing side, as happened with the War of the Spanish Succession, Great Britain was able to take out net economic gains, including Manhattan, Malta, numerous naval bases and islands, and cod fisheries, all of which cumulated into its growing maritime empire.

[106] Furthermore, in the Netherlands, intercontinental trade decreased dramatically after 1780; the exact numbers after that date were negligible, and we set them to zero in figure 6. In Costa, Palma, and Reis, 'The great escape', numbers for the Netherlands correspond to 1780, but we prefer to use 1800 in this graph to show that, unlike with England, the previous level of intercontinental trade of the Netherlands was not sustainable. By the late eighteenth century, England led intercontinental trade by a large margin and that trend would continue into the nineteenth century. Note additionally that the numbers for Spain and Portugal in the figure include precious metals, which were an important share of trade for the Iberian economies but also had negative long-term consequences for them; Palma, 'American precious metals'.

gested from the growth of London, and led to a high-wage economy which induced technological change.[107]

Why did Britain's growth in intercontinental trade diverge from that of its Dutch, Spanish, and French rivals over the eighteenth century? Three related factors contributed to this. First, its state capacity – which had lagged behind that of continental powers until the English civil wars of the mid-seventeenth century – rapidly caught up thereafter, even surpassing that of most other countries over the course of the eighteenth century.[108] This allowed for the building of the world's hegemonic navy. Second, Britain's geographical situation meant that its external borders were comparatively easy to protect.[109] The borders could be defended through heavy investment in a navy and a relatively small army. Third, Britain benefited from the development of an institutional framework which nurtured comparatively effective institutions, including the Bank of England, which ultimately protected its independence.

IV | CONCLUSION

The Bank of England supported the British state and economy during the eighteenth century. It was a private institution that provided the state with essential services for profit. The relationship was symbiotic, since it benefited from lending and its privileged position, but it also supported the state by providing it with credit, especially during critical moments when the private market would have dried up. The ease with which the Bank could, in practice, deny funding to the state varied with respect to different contingencies, such as the state of reserves, whether a war was occurring or a charter renewal was approaching.[110] However, overall, and because the directors of the Bank perceived that the safety of the Bank would not be compromised, it acted with a large degree of autonomy, which turned out to be beneficial to the state in the long run.[111] Fiscal capacity was positively affected, which meant that it was possible for the state to increasingly demand funds without credibility problems affecting the ability to repay at equilibrium interest rates. A positive feedback loop ensued. The transformation of sovereign debt into money was, in turn, transmitted to the private economy, and this elastic supply of liquidity supported long-run economic growth and financial development.[112]

While limited short-term evidence may suggest some degree of crowding out through diversion of funds from private to public expenditures, the net effect of this for long-run growth is far from clear cut once the beneficial indirect effects of external security and warfare are factored in.[113] Most public spending was military, and this complemented private spending rather than substituting for it. In the long run, there was a net downward effect on interest rates. There was, hence, a positive joint causality between warfare and the expansion of both state capacity and financial

[107] Palma, 'Sailing away from Malthus'; Allen, *British industrial revolution*.

[108] Karaman and Pamuk, 'Ottoman state finances'; Karaman, Pamuk, and Yildirim-Karaman, 'Long run patterns'.

[109] O'Brien, 'States and transitions'. In this, it contrasted sharply with the case of other high (per capita) fiscal-capacity states such as the Netherlands or Venice.

[110] Broz and Grossman, 'Paying for privilege'.

[111] It was in the long-term interests of the state that the Bank remained autonomous; that was how credibility was built up over time.

[112] As the successive re-chartering of the Bank always required taking on more sovereign debt, that became increasingly the basis on which the Bank had to assess risk to the price stability of its note issue; Hotson, *Respectable banking*.

[113] See the conclusion to Temin and Voth, 'Credit rationing'; also isdem, *Prometheus shackled*, p. 175.

intermediation. These findings lend support to the fiscal–military state literature. Lending by the Bank to the state led to higher fiscal, administrative, and military capacity. This lending was supplemented by individuals and companies who borrowed from the Bank and in turn lent to the state.[114]

War was a necessary, but not sufficient, condition for this development. Other European economies were also mobilised for warfare, though at levels of intensity presently hard to compare with those which applied to Britain. A plausible hypothesis seems to be that the effect of war was conditioned by a set of geographical and institutional factors which, in the British case, were conducive to an elastic supply of liquidity and the development of the economy. From the late eighteenth century, the extraordinary danger represented by the war against France and its allies called and allowed for much bolder monetary experiments than would have otherwise been possible either in 'normal' times or in continental countries where institutions of a comparable standing to that of the Bank of England did not exist. At the beginning of these unusual wars, ministers and contemporary observers knew full well that the outcome of the war was far from certain.[115] Support provided by the Bank of England turned out to be essential.

A wider message of our paper is that under a stable institutional framework, discretionary and unorthodox monetary policy can play a useful role in responding to extreme, 'black swan'-type events for which the odds of alternative outcomes are difficult to calculate.[116] Napoleon was hoping for an assignat-type crash in English money markets from around 1797 onwards, but despite the pessimism echoed by Gillray and other political commentators, that never materialised. Unlike France and elsewhere on the continent, paper money retained its value and circulated often at comparatively small discount, peaking at only around 35 per cent.[117]

The success of the Bank Restriction Act, which suspended convertibility altogether – not to be restored until about a year after the war was over[118] – instead led to unprecedented amounts of lending from the Bank of England to the state being effectively added to the money supply, increasing the levels of monetisation of the economy. Well into the nineteenth century, the Bank of England remained an institution widely admired, and eventually imitated, by continental powers.

It is sometimes argued that the British industrial revolution had little to do with the state or with political institutions[119] or that England industrialised despite the negative effects of the state

[114] O'Brien, 'Government revenue' (chapter 5, pp. 99–168) discusses the individual case of loan contractors who dealt with government borrowing. From the late 1760s, the Bank also provided secondary national debt market services, which in turn facilitated the issuing of new debt; Kynaston, *Bank of England*, p. 41.

[115] Knight, *Britain against Napoleon*.

[116] Kay and King, *Radical uncertainty*.

[117] O'Brien and Palma, 'Danger', p. 396. By contrast, very large discount in banknotes occurred not only in France but also in continental European countries that tried to implement similar policies; see for instance Hamilton, *War and prices*, p. 4; Madureira, *Mercado e privilégios,* pp. 290–1. Roberds and Velde, 'Early public banks', p. 488, write that 'In countries such as Austria, Prussia, and Sweden, finance of military operations resulted in significant inflations … The exceptional case of England, which experienced only mild wartime inflation despite heavy banknote issue, is ironically best remembered. The Bank of England's success at dealing with the temptations posed by banknote issue provided evident proof that a (largely) fiscally backed money was not only possible, but practicable'.

[118] The legal framework for the resumption of the gold standard (Peel's Act) was enacted in July of 1819. Convertibility was implemented 1 May, 1821. This slowed down, but did not prevent, further expansion altogether because the gold standard was more flexible than is often assumed. See Redish, 'Anchors aweigh'.

[119] For example, Mokyr, 'Industrial revolution', or Clark, *A farewell to alms*.

and the banking system.[120] The evidence we have presented here – taking the Bank of England as a case study – suggests otherwise.

ACKNOWLEDGEMENTS

We thank Mike Anson, Eric Monnet, Kivanç Karaman, Larry Neal, Ryland Thomas, speakers at several conferences and seminars, the editor John Turner, and three anonymous referees for comments and discussions. Alejandra Irigoin kindly shared data on counterfeit banknotes. Joakim Book provided excellent research assistance. The usual disclaimer applies. Some of the work in this paper is based on Patrick O'Brien's unpublished Oxford DPhil thesis.

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How to cite this article: O’Brien, P.K. and Palma, N., ‘Not an ordinary bank but a great engine of state: The Bank of England and the British economy, 1694–1844’, *Economic History Review*, 00 (2022), pp. 1–25. https://doi.org/10.1111/ehr.13191