

The establishment of the Bank of England can be treated, like many historical events both great and small, either as curiously accidental or as all but inevitable.

Clapham (1944, p. 1)

1. Introduction

The Bank of England is amongst the most studied of Britain's economic institutions, with a long and distinguished history. It is the world's second oldest central bank, was Britain's only incorporated bank for more than a century, and, during the heyday of the international gold standard in the late nineteenth and early twentieth centuries, was the world's dominant financial institution, private or public.¹ Despite this impressive lineage, an observer who had been present at its creation in 1694 could be forgiven for viewing the Bank as just another privileged entity that loaned the government money in return for favors.

The founding of the Bank has been the subject of extensive study and debate. Classic scholarly works on the Bank and its early years include those by Andréadès (1924), Clapham (1944), Rogers (1887), and Richards (1965). More recently, North and Weingast (1989) have taken a more analytical approach to the causes and consequences of the founding of the Bank of England.

Most of the modern studies of the Bank cited above have focused on the conditions of late seventeenth century public finance and credit markets that led to the Bank's founding: that is, the government's need for funds to pursue war with France and the incentives faced by the group of private entrepreneurs who hoped to establish a profitable institution with government-granted privileges. However, the Bank's founding in 1694 did not permanently establish the Bank in law. The Bank's original charter guaranteed a minimum life span of only eleven years.

¹ The Swedish Riksbank predates the Bank of England by more than three decades, although the modern concept of central banking did not emerge until the nineteenth century (Broz 1998, Goodhart et al 1994).

At the end of that time, the government, with one year's notice, could exercise an option to repay its loan and dissolve the charter. In fact, the Bank's charter was not dissolved but was renewed nine times by Parliament between 1694 and 1844—the date of the last “Continuance” Act. Each renewal extended the Bank's life span to a new option date, but these renewals occurred at irregular intervals, as the government and the Bank often renegotiated the terms of their ongoing contract prior to the option date. Although the Bank could continue to exist indefinitely after the option date without a new charter, as it did after 1844, during the century and a half following the Bank's founding, charter renewals were a recurrent feature of the Bank's life.

Although the initial charter has received a great deal of attention, the Bank's subsequent charters have, for the most part, not been subject to detailed analysis. Our goal in this paper is to examine the process of rechartering after the initial 1694 charter up until 1844 in order to discern the motivation of both the government and the Bank. More generally, we exploit data on Bank of England recharterers to quantitatively evaluate arguments about the purposes and persistence of this important institution. Our analysis ends just prior to Peel's Act of 1844, since that charter so fundamentally changed the Bank that we take it as qualitatively different from earlier charters (Fetter 1965, Bagehot 1873).

Ideally, we would like to examine all aspects of the Bank's charter renewals. These include the size of the outstanding loan, the terms of the loan (interest rate, management fee), and other aspects of the charter (such as those granting the Bank a monopoly on incorporated banking or other privileges). In theory, each element of each charter could be valued, allowing us to calculate the costs and benefits to both the government and the Bank. However, because of the complicated and multifaceted nature of the contracts, we cannot, at this stage of our research, assess all aspects of the charters. Consequently, we focus on one simple element of each charter: timing. Although each of the charters we consider was granted for a specific period, renewals

could be—and were—enacted before the previous charter’s option date, sometimes many years before. The irregular intervals between rechartering provide the leverage necessary to empirically investigate the motivations that led both the government and the Bank to establish and maintain the institution.

We argue that the rechartering process reflected the needs of both the government and the Bank of England to respond to unforeseen contingencies. The initial charter was an incomplete contract between the government and the Bank’s proprietors. The government obtained immediate financial support from the Bank, but also benefited from the rechartering feature of the contract as a means to adjust to unanticipated changes in its fiscal environment. The Bank’s managers, acting as agents of stockholders, saw the government as a source of economic rents, and gained from renegotiating its charter when it faced new competition in banking. A permanent contract could not be written to cover all future contingencies. The renegotiation clause thus gave the parties the flexibility to adjust the contract to changed conditions.

Briefly, we find that, like the original charter of 1694, the government’s motive for rechartering was primarily fiscal. Rechartering that took place more than a decade before the option date of the previous charter seem to have been motivated by substantial government deficits and a need for increased financing. However, charters that were renewed closer to their option dates were also preceded by heightened deficits. Statistical tests indicate that the probability of enacting a new charter increased as unanticipated war-related fiscal deficits increased. We also find that a new charter was more likely when the Bank appeared to be earning excessive rents from its monopoly privileges, as signaled by prior upward movement in Bank of England share prices. This finding accords with our view that the government was also uncertain about the franchise value of the monopoly it granted the Bank, and that it used the rechartering process to adjust to unanticipated increases in Bank profitability.

As for the motivations of the Bank, we find that the Bank's share prices typically rose in the aftermath of rechartering, suggesting that rechartering benefited the Bank's shareholders as well as the government. Although the government may have used Bank of England share prices as an indicator of the value of the Bank's monopoly franchise, the market apparently viewed a successful recharter as signal that the voluntary "rents-for-loans" bargain between the Bank and the government would be maintained. Our results not only indicate that rechartering had a positive and significant effect on the price of Bank stock, but also that the government's fiscal balance was an important determinate of Bank share prices.

The outline of our paper is as follows. The next section describes the Bank's role in English public finance and its place in the financial revolution of the early eighteenth century. Section three identifies the key features of the Bank's original charter and subsequent rechartering. Section four develops a theoretical approach to the contracting problem facing the government and the Bank. Section five presents quantitative evidence on the process of rechartering. Conclusions follow in section six.

2. The Bank of England and Public Credit

From its origins, the Bank of England played a major role in English public finance. Its more modern functions as monetary manager and lender of last resort were not associated with its foundation or its early evolution. We summarize developments in British public credit during the financial revolution of the early eighteenth century and identify the features that set loans from the Bank (and similar corporations) apart from other innovations of the era. This background sets the stage for our analysis of Bank of England charters through 1843.

The impetus for the founding of the Bank of England was a large wartime loan to the government, but its roots go to the "Glorious Revolution" of 1689. The Revolution put public

finance on a constitutional basis, grounded in the Declaration of Rights. Prior to this political event, the king had supremacy over fiscal and financial policy—the determination of expenditures, revenues, and borrowing was largely a royal prerogative. This led to abuses, such as the “Stop of the Exchequer” in 1672, when Charles II unilaterally stopped all payment of principal to his creditors (Dickson 1967, 44-45). With the Revolution, the Crown lost most of its independence in these areas. Loans could not be raised, nor expenditures incurred, without the consent of Parliament. Thereafter, public loans were backed by Parliament, which improved government creditworthiness by increasing the security of creditors (North and Weingast 1989, Root 1994, 190-91).

Constraining the king’s power also allowed Parliament to undertake a series of financial innovations that amounted to a revolution in its own right. Prior to 1689, efforts to remake the system of public credit were hamstrung by Parliament’s fear that any improvement would allow the king to satisfy his financial needs without its consent. None of the many proposed projects received a hearing before the Glorious Revolution because the “financial weakness of the King and his dependence on parliamentary grants formed one of the most powerful safeguards of the liberties of the people” (Philippovich 1911, 54). With Parliament ascendant after 1689, projects for improving public credit found greater political acceptance and led to a “Financial Revolution” (Dickson 1967).

The Financial Revolution (1693-1720) was marked by the replacement of short-term floating debt with long-term loans secured by specific sources of revenue. In the language of the day, it was a switch from “unfunded” short-term to “funded” long-term debt (British Parliamentary Papers, 1898). The unfunded debt consisted of “tallies” issued by the Treasury and bills drawn on the war departments, which had their own systems of credit to pay military

suppliers.² Tallies and departmental bills were issued to creditors in anticipation of annual tax revenues but were not tied to any specific revenue streams; hence they were “unfunded.”

Funded long-term loans had three advantages over tallies and other short-term debts. First, subscribers to the loans were paid back annually over long periods, which helped the government to finance the immediate needs of war on a relatively small and inelastic revenue base (Brewer 1988, 119-22; Carruthers 1996, 73). Second, the funded debt allowed the government to borrow large sums to finance wars via a policy of tax smoothing. Financing wartime expenditures by borrowing, then servicing and amortizing the debt by taxation in peacetime, lowers the total costs of raising revenue because it produces fewer distortions in the investment decisions of private economic agents (Barro 1987). Indeed, with the innovations in public finance that occurred during the financial revolution, Great Britain was able to smooth taxes and therefore suffered less from the resource drain of war than its rivals (Sargent and Velde 1995, Brewer 1988). Third, the loans were “funded,” meaning that Parliament set aside specific revenues to meet interest payments, a feature that further enhanced confidence in lending to the government.

Figure 1 shows the evolution of the funded and unfunded debt as a proportion of total government borrowing between 1693 and 1844. In 1712, the funded debt surpassed the unfunded debt as a share of total debt. By the 1720s, over 90 percent of all government borrowing was long term and funded. This, in a nutshell, was the Financial Revolution.

² Tallies took a primitive physical form whose chief advantage was that they could not be forged. Tallies were pieces of wood in which the terms of the loan (amount, interest rate, and maturity date) were notched. The tally was then split in half, with one piece retained by the Treasury and the other held by the creditor. At term, the creditor brought his half of the tally to the Treasury where it was matched with its twin (Dickson 1967, 350).

The funded debt was composed of three types of long-term loans: loans based on the grant of corporate privileges, annuities, and lotteries. These innovations were developed between 1693 and 1711 and persisted, with minor modifications, for the next century. England was at war for much of the period of the Financial Revolution, and the limits on short-term borrowing provided the impetus for the innovations in long-term borrowing. While revenues were not sufficiently elastic to finance wars by means of tallies, taxes would suffice to pay the interest on long-term loans, for which the government was not bound to repay the principal before a distant date.

Borrowing from corporate entities played an important part in the funded debt. The first such loan came with the creation of the Bank of England in 1694 and this loan formed a model for subsequent bargains establishing the New East India Company in 1698 and the South Sea Company in 1711. The principle behind such loans was the “incorporation of the public debt” (Philippovich 1911, 80-84), which is to say the government incorporated creditors into joint-stock companies and granted these companies economic privileges in banking and foreign commerce in exchange for permanent loans. The basic terms of these corporation loans were as follows.

Private creditors were allowed to pool their resources and form a joint-stock company by lending the entire capital stock of the company to the government. The initial 1694 charter of the Bank of England, for example, provided for a loan of £1,200,000 to the government at 8 percent. The capital stock of the Bank thus constituted a loan to the state, which was secured by new customs and excise revenues. Similarly, the New East India Company was capitalized in 1698 on the basis of a government loan of £2 million paying 8 percent. The formation of the South Sea Company in 1711 was a modification of this pattern, as the company was incorporated not out of a new loan to the government, but by a refunding operation in which £9,177,967 in outstanding

short-term debt was converted into long-term funded debt. Holders of short-term tallies and departmental orders, then trading at a steep discount, were allowed to convert these assets into South Sea Company stock at par.³ The Bank of England performed a similar conversion in 1697, in exchange for an extension of its charter and a strengthening of its economic privileges (Scott 1911, vol. III, 289).

Borrowing from corporations created permanent debts, meaning that subscribers would receive interest in perpetuity, but no repayment of principal. Although the repayment of principal was not ruled out with loans from corporations—the government could repay the loans upon notice—it was not required by the initial contract. This was an advantage over the other forms of long-term borrowing for two reasons. First, the government could borrow larger sums on the same revenue base since annual debt service required payment of interest only. Second, since the government pledged to make interest payments in perpetuity but retained the right to repay the capital of the loan after a certain date, it could always dissolve the contract with the corporate creditor if the creditor would not agree to a change in the terms.⁴ Loans from the Bank of England, the New East India Company, and the South Sea Company thus “possessed the advantage that the capital was redeemable at an early date, and therefore the State was in a position to take advantage of any improvement in its credit, by securing a reduction of the interest on a renewal of the loan” (Scott 1911, vol. III, 290-91). The right of the government to terminate a corporation at notice could also be a useful tool to cajole new loans or other services from the corporations.

³ See Scott (1911, vol. III, 288-360), Neal (1990).

⁴ The 1694 charter of the Bank of England allowed the government to repay the debt to the Bank and dissolve the corporation after giving 12 months notice any time after August 1, 1705. The debt to the New East India Company was redeemable after September 1701, and the South Sea Company’s charter could likewise be dissolved after repayment of the loan anytime after March 25, 1726, upon three years notice.

Another feature of corporation loans was that they created but one creditor, thus reducing the government's transactions costs. Instead of having to deal directly with each individual creditor of the state, the government made a single periodic lump sum transfer to each company of the sums required to pay the interest on the loans, but the administration of the debts passed over to the companies. Subscribers to these loans were ordinary stockholders in every sense of the word: they were entitled to regular dividend payments out of the profits of the company (i.e., payments from the government plus any additional profits earned in the course of business less expenses) and were free to transfer their shares. This "incorporation of the public debt" meant that public creditors were formed into a corporation to manage the public debt like the ordinary working capital of a company (Philippovich 1911, 83).

An advantage of this type of policy was that corporate stocks were more liquid than other government obligations. Company shares could be sold, which allowed creditors to regain their capital without the government having to repay the loan. According to Carruthers (1996, 82), "Liquidity was one of the great advantages of lending to the government through company stock rather than annuities or lottery loans, for the latter were hard to transfer and hence illiquid by comparison."

As the public debt was the basis for corporate stock issues, shareholder returns were composed of both the regular interest paid by the government and any change in price of the stocks due to profits/losses of the business. The anticipation of profit due to the rise in share prices may help explain the success of these schemes in attracting subscribers. For example, the initial shares of the Bank of England were taken up with "contemptuous ease" in ten days after it was issued (Dickson 1967, 55), and the additional subscription of over £2 million of Bank stock that came as part of the rechartering Act of 1709 sold out in only four hours. However, the spectacular appreciation and sudden collapse of South Sea Company stock in 1720, which grew

out of a scheme to persuade holders of almost all outstanding government debt to exchange their government obligations for shares in the company, illustrated the risks. South Sea stock rose from £128 to £1,000 in early 1720, only to fall to £135 by November. The collapse led to the imprisonment of the Chancellor of the Exchequer and the “Bubble Act” which restricted the formation of new companies. Indeed, the foundation of the South Sea Company was the last time corporation rights were granted to public creditors.⁵

Finally, each company received monopoly privileges in its area of economic activity. The two foreign trading companies received exclusive rights in their original charters to trade in their respective areas of the world. The Bank of England received no exclusive privileges in its initial 1694 charter beyond making the notes of the Bank assignable by law. It was granted rights to conduct a general banking business, something no other corporation had been afforded (although there was no guarantee that this would be exclusive). But extensive monopoly privileges came with the Bank’s rechartering of 1697 and 1708. Details on the specifics of the Bank’s charters follow in the next section.

In addition to chartered companies, the funded debt was composed of annuities and lotteries. These differed from corporation loans in several respects. With lotteries and annuities, the government contracted to repay both interest *and* principal, albeit over long periods. Furthermore, these loans were not redeemable at the sole discretion of the government, which meant that a change in the terms of outstanding loans required the consent of creditors. Creditors also did not receive special monopoly privileges, as was the case with loans from corporations.

The first annuity loan was issued in 1693 when Parliament voted new taxes on beer and other liquors and earmarked this revenue for payment of a loan of £1 million. The loan was a

⁵ For an extended discussion, see Dickson (1967, 122-98).

“single-life” annuity paying 14 percent, meaning that the annuity was paid so long as the person nominated by the purchaser of the annuity was still living (the nominee need not be the purchaser). In 1694 Parliament authorized another loan of £300,000 paying 14% on annuities for one life, 12% on annuities for two lives, and 10% for three lives.⁶ An annuity for two (three) lives meant interest payments continued as long as either of two (three) nominees was still alive. Lower interest rates were accorded to purchasers that opted to name two or three nominees since this extended the period of the loan (e.g., infants were frequently named as second and third nominees). After 1704, the most common form of annuity was the “terminable” annuity, which differed from the life annuities in that duration of interest payments was predetermined, typically 99 years (Dickson 1967, 60-61).

The lottery loan, as the name implies, was more speculative, at least on the part of the investor.⁷ The first of many lottery loans was issued in 1694. It raised £1 million, secured by new duties on salt, beer, vinegar, and brandy. The government issued 100,000 tickets at £10 each, on which £1 (10 percent) was paid annually for 16 years if that ticket did not win a prize. There were 2,500 prize tickets, the first of which paid £1,000 per year for 16 years. The total cost of the loan to the government was 14 percent. During the War of Spanish Succession (1702-1713), four new lottery loans totaling £11,247,710 were issued. In all cases, the repayment period was for 32 years. Large lottery loans were issued during every period of warfare in the eighteenth century. During the Seven Years’ War (1756-1763) and again during the American war (1776-1783), lotteries were conjoined with annuity loans (Philippovich 1911, 120-23).

⁶ The high rate of interest reflected political risk. William’s regime was contested, and if the Stuart Kings returned, they would repudiate the loans. Homer and Sylla (1996, 150) note that the provinces of Holland were borrowing at 3-4%, and did not have to pledge specific revenue.

⁷ Dickson (1967, 45) attributes the speculative character to sentiments of the era: “It was an age of wagers on the lives of private and public men [life annuities involved a bet on the longevity of creditors], the chances of war, and the occurrence of natural events, as well as the issue of a horse-race, the fall of the dice, the turn of the card.”

In summary, the Financial Revolution in England that followed the onset of constitutional government in 1689 was characterized by the move from short-term debt to long-term public debt secured by specific revenues. The Bank of England and the two other chartered corporations played a significant role this revolution. Figure 2 shows the proportion of the funded debt borrowed from the Bank of England, the East India Company, and the South Sea Company from 1694 to 1786. By the end of the war with Spain in 1721, the government had borrowed £32.8 million from the three major joint-stock companies, £14 million through annuities, and £15.4 million through lottery loans. After mid-century, the share of long-term borrowing from the companies fell steadily, as lotteries joined to annuities, and various combinations of annuity loans, became more favored. Yet the companies, especially the Bank of England, grew to play a predominant role in administering the public debt, intermediating new annuity and lottery loans, and managing the consolidation of existing loans at lower interest rates (Philippovich 1911, 143-82).

The charters of the Bank of England, New East India Company, and South Sea Company had many legal similarities. In each case, the capital stock consisted of a public debt that was only redeemable after a certain notice; no increase in this could be made without the consent of Parliament. The capital formed a joint stock, the shares of which were transferable. The companies similarly managed the payment of interest on the public debt to shareholders, and the price at which stocks were issued gave the opportunity for profit. Each company had a monopoly in its own sphere of activity. The companies' connections to public finance were also similar. They were creditors of the government by making loans to it directly, or through the purchase of government bills, or by taking over existing public debts. But unlike the two commercial companies, the Bank of England was able survive, in close association with the government, as it successfully negotiated continuances of its charter.

3. Bank of England Charters

The Bank of England's initial charter was passed in 1694. Although a number of innovations were introduced and specific terms changed in subsequent charters, many important features of the charter remained remarkably constant for the next century and a half. The charter granted a group of individuals a corporate existence styled as the "Governor and Company of the Bank of England." The Bank was to provide the government a loan of £1,200,000 in return for an annual interest payment of £100,000 per year⁸ to be secured by tonnage duties.

The original charter did not grant the Bank a privileged position as the government's banker, as it would later become, nor did it grant the Bank a monopoly on joint stock banking (also to follow), nor did it make the Bank's notes legal tender. The main import of the charter was to raise funds for the government's war against France, in return for which the government promised a predetermined annual payment secured by a discernable source of revenue.

Important aspects of the loan contract were asymmetric and, from a modern perspective, favorable to the government. For example, the loan contract was non-callable. That is, the Bank could not demand repayment early. Conversely, the government *was* given the option to prepay the loan and terminate the Bank's charter, with one year's notice, at any time starting eleven years from the date of the charter. Subsequent charters held to this same general pattern, specifying the amount that the loan would be increased, the loan terms, and the guaranteed minimum length of time that the loan/charter would be in effect. The basic features of the charters of 1694 to 1844 are summarized in Table 1.

On the asset side, the Bank could deal in bills of exchange, make loans on promissory notes, and lend on mortgages. Its borrowing privileges were not specified, however, it could take

⁸ A rate of 8.33 percent. According to Clapham (1944), the interest payment was construed as 8 percent interest plus an annual £4,000 management fee.

deposits on any terms as long as its liabilities did not exceed the amount of the government debt (which formed the bank's capital stock). The Bank could issue notes up to the amount of its debt/capital. Notes, bills of exchange, and other debts of the Bank received the same treatment: they were the liabilities of the Bank, and their security rested on the government debt. It was not long, however, before competitive threats led the Bank of England to seek and receive *exclusive* rights in the banking and in managing government debt.

In 1695, Parliament chartered a rival Land Bank that never began operation because its promoters failed to raise the capital needed for a loan to the government (Horsefield 1960, chaps. 14-16). The Land Bank challenge prompted the Bank of England to negotiate an exclusive privilege in the recharter of 1697. In return for additional loans to the government, the 1697 Continuance Act stated that “no other Bank or Constitution in the nature of a bank be erected or established, permitted or allowed by Act of Parliament during the Continuance of the Bank of England.” The Bank “wanted no more Land Banks” (Clapham 1944, 47).

In 1708, during the War of Spanish Succession and again in exchange for a fresh loan, the Bank obtained from Parliament its most significant barrier to entry: the legal prohibition of associations of more than six individuals from carrying on a banking business in England. This was crucial in restricting competition, because issuing bank notes was the major source of bank funding in this era (White 1989, 73). The Act of 1708 thus gave the Bank a monopoly over joint-stock note issue. Despite the absence of a ban on joint-stock deposit banking, “the intention was to give the Bank of England a monopoly of joint-stock banking, and had any other institution of more than six partners attempted to carry on a banking business in England . . . it would have been suppressed” (Feavearyear 1963, 167-68).

The Bank regarded its paper currency monopoly as critical to its profitability and was willing to make financial concessions to the government in order to protect and extend it. The

government, in turn, was willing to grant the Bank a monopoly, because it needed the Bank's assistance to help it finance frequent foreign wars. Just prior to the expiration of its charter in 1742, the Bank provided an interest-free loan to the government in return for receiving a confirmation of its monopoly powers (the privilege of issuing circulating notes was reinforced) and a lengthening of its charter to 1764. In that year, the Bank gave the government a gift of £110,000, plus a loan at 3 percent. In 1781, another extension was granted in return for yet another loan, giving the Bank a charter until 1812.

Our decision to focus on the timing of charter renewals does not signal a belief that other aspects of the charters were not important. On the contrary, we believe that other aspects of the recharterers were crucial aspects of the contract between the Bank and the government. For example, the charter of 1697 gave the Bank a monopoly on joint stock banking in England and Wales that would last for more than a century. Similarly, the charter of 1708 exempted the Bank from a law that limited note issue to partnerships of no more than six people. These are clearly important elements, although, for purposes of the current analysis, hard to quantify.

4. Theory

We conceive of Bank of England charters as mutually beneficial exchanges between the government and the Bank's private owners (shareholders) designed to ensure that the parties remained mutual hostages to an initial contract. The first three charters of the Bank of England (1694, 1697, and 1708) established the initial contract: the government would use its authority to restrict competition in the banking and government debt markets to the advantage of the Bank in exchange for permanent loans and other financial support from the Bank. Subsequent charters were designed to ensure that both parties lived up to this agreement in the face of changing circumstances. A single permanent contract could not be written to cover all future

contingencies, nor could it prevent either party from acting opportunistically *ex post*. Every Bank of England charter thus contained a renegotiation clause that gave the parties the flexibility to adjust the initial bargain to changed conditions and allowed for sanctioning in the event of opportunism. In short, the Bank of England was not made a permanent institution due to problems of incomplete contracting.⁹ The rechartering process mitigated these problems.

While this argument is rooted in the literatures on Industrial Organization and on Information and Uncertainty, the present application requires a Political Economy slant. We have, on the one hand, a political actor – the government – seeking to provide fiscal public goods (financing wars via a policy of tax smoothing) but with the power to create monopoly rents for a favored group of private agents. On the other, we have a rent-seeking group that lobbies the government for special favors. This sets our analysis apart from standard contracting fare in which the parties are typically modeled as firms trying to mitigate problems of arms-length exchange. Nevertheless, we see no basic obstacle to importing the contracting approach to the case at hand. The Bank of England's charters were contracts, albeit incomplete contracts, that stipulated the terms of the relationship between the Bank and the government. Hence, we can analyze the characteristics of these charters in terms that are familiar to economists and, increasingly, to political scientists.

Our specific goal is to understand the timing of Bank of England recharters. The key feature of these charters was that the government retained the authority to repay its permanent debt to the Bank and to dissolve the corporation upon a year's notice. This feature of the contracts provided the government with an instrument of leverage over the Bank. Since the Bank valued its exclusive banking privileges and its role in managing the public debt, the threat of

⁹ See Hart (1995) and Tirole (1999) for the current state of this literature.

dissolution could be used to extract further financial assistance from the Bank.¹⁰ No contract could be written that specified precisely the amount or form of assistance that the government might need from the Bank into the future. The government's future financial requirements were a complex combination of the likelihood of war, its creditworthiness, its access to other types of loans (e.g., annuities, lotteries, and various short-term loans), and its capacity to adjust revenues and expenditures to meet unforeseen contingencies. In the face of such uncertainty, the right of the government to terminate the contract with the Bank provided flexibility. The government might use the threat to renegotiate the terms of the existing debt due the Bank, to obtain new loans from the Bank, or to require the Bank to aid in the consolidation of other existing loans (short and long) by engrafting these loans to the debt due to the Bank. It might also employ the threat of redemption to ensure that the Bank did not exceed its legal rights, as defined in its charters, or earn excessively high rents from its monopolies. More generally, it was a threat "by means of which the good behavior of the corporation might be secured" (Philippovich 1911, 71).

While the loan contract was asymmetric in the sense that the government retained discretion over the continuance of the Bank of England, the Bank also found advantages to renegotiating its charters. Most importantly, the dependence of the government on the Bank allowed the Bank to protect its monopoly franchise when faced with new competition that was unforeseen at its founding. The case of the Land Bank is illustrative of this point. The Bank of England's original charter contained no limitation on the ability of Parliament to charter competing banks. But when Parliament acted opportunistically on this loophole by chartering the Land Bank in 1695, the Bank of England demanded in the 1697 renegotiation of its charter that the government commit itself to enforcing a legal Bank of England monopoly. Likewise, when

¹⁰ Of course, following through on any such threat would have been costly for the government, since they would have to actually repay the loan.

the Bank realized that its charter had not prevented the rise of unincorporated (private) bank competitors, it secured a new clause in the recharter of 1708 stipulating that no firm consisting of more than six persons could issue bills or notes in England. In short, the rechartering process allowed the government *and* the Bank to adjust to changing economic and political conditions.

5. Quantitative Evidence

Among the widely noted incentives faced by the government in chartering (and rechartering) the Bank was the government's fiscal situation. As noted earlier, the impetus for the Bank's foundation came primarily from the Crown's need to raise money for war with France. If the fiscal incentive did, in fact, drive the rechartering process, then we should expect to see a relationship between rechartering activity and the government's budget balance.

Figure 3 presents data on the average size of the government's surplus (revenue – expenditure), measured as a percentage of expenditure, revenue, and total budget, as well the proportion of the budget devoted to military expenditure, in the years before and following recharterers. On average, the budget deficit grew in the half dozen or so years preceding recharterers, reaching a maximum two years prior to recharter. The deficit declined in the subsequent year (the year preceding recharter), rose again in the year in which the new charter is granted and declined in subsequent, post-charter years. The broad outlines of the rise and fall of the budget deficit appear to be driven by military expenditures.

Although the timing is somewhat imprecise, the general outline is clear. The period prior to a recharter was typically one of increased fiscal pressures upon the government, driven largely by military spending. Post-charter years were characterized by declining deficits, (as the government's budget was bolstered by infusion from the Bank).

To further assess the proposition that the government's decision to seek a charter renewal was driven by fiscal factors, Figures 4a-4b present similar data for two different types of charter renewals: one for charters that were renewed at the very end of the previous charter (with less than two years left) and another for charters with more than ten years to run at the time of renewal. If charter renewals were driven, on the government's side, by fiscal pressures, then we should expect early recharterers to exhibit greater fiscal stress than later recharterers. In fact, although the average budget balance does move towards deficit prior to recharter in both cases, the movement is much more pronounced in the early recharterers. Thus, the government's incentive to press for an early charter renewal does appear to be fiscally driven.

What of the incentive faced by the proprietors of the Bank of England? This is somewhat more difficult to assess, since we do not know much about the wealth and opportunity costs of Bank lending to the government. We can, however, see the reaction of the price of Bank of England shares to charter renewals (Figure 5). The price of Bank shares declined in the years preceding recharter and rose in its aftermath, although the pattern is not especially dramatic, nor substantially different between early and late recharterers. For the late recharterers, the decline in price may reflect, in part, the uncertainty of renewal at the end of the charter. For early recharterers, the slightly more dramatic fall may reflect the more severe budget deficits that characterized early recharterers, and an accompanying fear that the government would not be able to meet its obligations.

Although these figures are illustrative, they only describe what happens to various measures prior to and after a charter renewal. Furthermore, they assess only one factor and do

not specifically consider the decision to recharter. We can model the decision to renew the charter in a manner that reflects a variety of factors simultaneously with probit analysis.¹¹

Table 2 presents the probit results. The dependent variable takes on the value of one if a new charter was enacted in the given year, zero otherwise. Independent variables include three alternative measures of the budget surplus (ratios of the surplus to total budget, surplus to revenues, and surplus to expenditures), the amount of time (in years) remaining on the current charter, and the percent change in the Bank of England share price over the previous one, two, or three years. See Table 5 for variable descriptions and sources.

The probits indicate that the probability of enacting a new charter rises as the surplus falls (i.e., the deficit rises). This accords with the results of Figures 4a-4b, which illustrates that the new charters typically occurred in times of greater budgetary stress. The coefficients are slightly more significant on the “surplus to expenditure” variable than on the other two budget measures. This makes sense, since we expect that the government would have been most sensitive to the surplus in relation to its desired expenditures. The probits also confirm the common-sense conclusion that the probability of a charter renewal rose as the time remaining on the existing charter declined. Finally, the probits consistently support the notion that increases in the Bank’s stock price over the course of the previous one, two, or three years raised the probability of a recharter. This suggests that the government was more likely to initiate a recharter if the value of the Bank’s monopoly rents rose in preceding several years.¹²

¹¹ Alternatively, this decision could be analyzed with a duration model, although such a model would be problematic for two reasons. First, since there were only eight recharterings in the period under study, the number of observations in such an analysis would be relatively small. More substantively, our interest is not so much in the length of any particular charter, but whether, in any given year, the charter was renewed or not. To address this question, a binary choice model, such as a probit, is appropriate.

¹² Indeed, evidence from Parliamentary debates indicates that the government monitored Bank profitability by comparing Bank stock prices (and Bank dividends) to market rates of return. See, for example, the discussions of the 1742 and 1781 renewals in Clapham (1944, 93-96, 177-182).

We can also analyze the consequences of rechartering for shareholders of the Bank of England. To do this, we regress the percent change in the Bank share price upon the change in the budgetary situation and a measure of the time remaining on Bank charters. Because Bank share prices are non-stationary, we employ the percent change in, rather than the level of Bank share prices as our dependent variable. The results are presented in Table 3.

In all cases, a new charter has a positive and significant effect on the change in bank stock prices, suggesting that a lengthening of the Bank's guaranteed life span increased the value of the institution. The estimated coefficients on years remaining on the Bank's charter were positive, although not always significant at standard levels. This result suggests that the more time remaining on the Bank's charter, the greater the increase in Bank stock prices, further supporting the view that the Bank's value depended positively on the length of its guaranteed life span. Given that the end of a charter might well mean the end of the existence of the Bank itself (although the shareholders would be compensated by the repayment of the loan), this seems a plausible result.

Adding the changes in the budget variables to the regression yields positive coefficients that are significantly different from zero. These coefficients indicate that an improvement in the government's fiscal position led to an increase in Bank share prices. We interpret these findings as a further indication of the symbiotic relationship between the Bank and the government. Since the capital of the Bank was loaned to the government, investors seemed to understand that the

government's capacity to pay the interest on this loan was contingent on its fiscal balance. An increase in the surplus thus translated into an increase in the price of Bank stock.¹³

The results presented in this section indicate that government rechartering of the Bank of England were motivated by fiscal necessity. Charter renewals were more likely the larger the government budget deficit. Early charter renewals seem to have been provoked by increases in the deficit, which may have been brought about by war or other unforeseen spending demands. The government also appears to have been sensitive to the monopoly profits accruing to the Bank: the greater the share price increase in the recent past, the more likely the government to enact a new charter.

The evidence is less clear about the impact of rechartering upon Bank shareholders. As the time remaining on a charter declined, the value of Bank stock fell, suggesting that the uncertainty faced by Bank shareholders had a negative impact on stock prices. Supporting this view, new charters, with their extension of the guaranteed life of the Bank, had a positive, although less clearly significant, impact upon Bank stock prices. Improvements in the fiscal position of the government appear to have boosted Bank stock prices. This could have resulted from increased confidence in the government's ability to make its payments to the Bank, or from a belief that a fiscally secure government would have less reason to try to appropriate the monopoly rents of the Bank.

¹³ Given the relatively low explanatory power of these regressions, we would like to include additional regressors to control for Bank share price behavior. Unfortunately, the two most likely candidates, interest rates (which, according to the dividend discount model, should influence equity prices) and overall stock market performance (as in the Capital Asset Pricing Model), each present data difficulties: (1) no single consistent interest rate series spans the entire period; (2) because the Bank is the first – and for several years the only – traded equity in Britain, any equity index is likely to be made up largely of the Bank's share price.

6. Conclusion

In most industrial democracies, important constitutional institutions are permanently established. Although the people who run these institutions may change, the continued existence of the institution itself is generally not in question. In this paper, we look at an institution that, over the course of a century and a half, became one of Britain's important—and permanent—constitutional institutions.¹⁴ The Bank of England was not, however, permanently established at the time of its foundation. By the middle of the nineteenth century, however, the Bank had become so well established that its continued existence was no longer in doubt.

In this paper, we analyze the timing of the renewal of Bank of England charters after the Bank's initial charter in 1694 until the adoption of the Bank Act of 1844. The periodic rechartering allowed the government—and the Bank—to adjust to changing conditions and needs in the contract's renegotiation. We find that rechartering of the Bank were driven by fiscal concerns on the part of the government: wars and other increases in expenditure tended to hasten the renewal of the Bank's charter. Thus, the primary motivation for the government to offer rechartering is clear. In addition, the government used the renewal process to assess the value of the monopoly franchise it conferred upon the Bank. Since the value of the franchise could not be accurately foreseen at the time when anticompetitive barriers were established, the government looked to increases in the price of Bank stock as an indicator of excessive rents. Hence, persistently high share prices also increased the probability of a recharter.

The Bank's motivation in the recharter process is slightly more difficult to analyze. If the enactment of a new charter bolstered the Bank's monopoly position, new charters should have a

¹⁴ The *de facto* constitutional status of the Bank was acknowledged as early as 1781 by Lord North, the Chancellor of the Exchequer (Clapham 1944, 174).

positive impact on the price of Bank stock. We do find a positive coefficient on new charters that is significantly different from zero. As charters approach expiration, the value of Bank stock appears to have fallen, although the significance of the coefficient estimates are sensitive to the inclusion of the budgetary indicators. Increases in the government's budget surplus have a positive and significant effect on Bank stock price, suggesting that investors might have viewed a fiscally healthy government as both a sound and content (in the sense of not wanting to appropriate Bank monopoly rents) creditor.

Our preliminary analysis of the rechartering process leaves many unanswered questions, which we hope to address in future work. First, although we have addressed the timing of Bank charter renewals, we have largely ignored other aspects of the Bank's charters. In future work, we hope to explicitly address other aspects of these contracts, ranging from the terms of the loan and the length of the charter granted, to the privileges granted by the government to the Bank. Specifically, we hope to assess which side might have had the "upper hand" in negotiations and how that balance might have affected the outcome of the negotiations.

Second, our analysis relies entirely on annual data. By employing monthly data and a closer examination of the historical record about when negotiations over charter renewals began, we could conduct more formal tests on the consequences of anticipated renewal versus actual renewal and thus gain a better understanding of the Bank's motivations.

Third, we have assumed throughout our analysis that government spending decisions were exogenous. That is, we have not allowed for the possibility that spending decisions were affected by chartering decisions. It is possible that the government undertook new spending in the years before a charter was up for renewal in the knowledge that new funds would be available.

The Bank of England played a central role in the Britain's development in the eighteenth and nineteenth centuries. The charters of the Bank—and indeed, the process generating these charters—had important consequences. The economic privileges the Bank secured in rechartering, or example, helped propel its rise to a modern central bank, with monetary and lender of last resort functions.¹⁵ Given the complicated nature of these contracts, further analysis is warranted.

¹⁵ “With so many advantages over all other competitors, it is quite natural that the Bank of England should have outstripped them all... Thus our one-reserve system of banking was not deliberately founded upon definite reasons; it was a gradual consequence of many singular events, and of an accumulation of legal privileges on a single bank” (Bagehot 1873, 66-7).

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Table 1: Summary Statistics of Bank of England Charters, 1694-1844

| <u>Date of Charter</u> | <u>Time Left at Renewal</u> | | |
|--------------------------|-----------------------------|------------------------------|--------------------------------|
| | <u>Years</u> | <u>Proportion of charter</u> | <u>Original Charter Length</u> |
| 1694 | | | |
| 1697 | 8 | 0.615 | 11 |
| 1709 | 1 | 0.043 | 13 |
| 1713 | 19 | 0.633 | 23 |
| 1742 | 1 | 0.045 | 30 |
| 1764 | 0 | 0.000 | 22 |
| 1781 | 5 | 0.161 | 22 |
| 1800 | 12 | 0.364 | 31 |
| 1833 | 0 | 0.000 | 33 |
| 1844 | 11 | 0.500 | 22 |
| Average (excluding 1694) | 6.33 | 0.263 | 23 |
| Standard Deviation | 6.67 | 0.267 | 7.58 |
| Median | 5 | 0.161 | 22 |

Sources: British Parliamentary Papers (1875), Clapham (1944), Andréadès (1924), Acts of Parliament.

Table 2: Probit Results
 Dependent variable:
 1 = new charter, 0 = no new charter

| Variable | 1 | 2 | 3 | 4 | 5 | 6 |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Constant | -0.876*** 0.322 | -0.892*** 0.324 | -0.834*** 0.319 | -0.960*** 0.364 | -0.961*** 0.362 | -0.944*** 0.362 |
| Surplus to Budget | -2.139** 0.971 | | | -2.164* 1.153 | | |
| Surplus to Expenditures | | -1.490*** 0.615 | | | -1.443** 0.708 | |
| Surplus to Revenue | | | -0.620* 0.323 | | | -0.697* 0.395 |
| Time Left | -0.082*** 0.032 | -0.082*** 0.032 | -0.083*** 0.033 | -0.089*** 0.036 | -0.089*** 0.035 | -0.090*** 0.036 |
| Bank of England Share Price Growth (1 year) | | | | 3.701** 1.836 | 3.664** 1.871 | 3.829** 1.807 |
| Bank of England Share Price Growth (2 years) | | | | | | |
| Bank of England Share Price Growth (3 years) | | | | | | |
| Log Likelihood Ratio | -26.800 | -26.493 | -27.168 | -22.885 | -22.717 | -23.018 |
| McFadden R-squared | 0.213 | 0.222 | 0.202 | 0.266 | 0.271 | 0.262 |

Notes: Robust Huber/White standard errors below coefficients.
 * significant at 10% level ** significant at 5% level *** significant at 2.5% level

Table 2: Probit Results, continued
 Dependent variable:
 1 = new charter, 0 = no new charter

| Variable | 7 | 8 | 9 | 10 | 11 | 12 |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Constant | -1.101*** 0.385 | -1.088*** 0.386 | -1.094*** 0.377 | -0.910*** 0.348 | -0.909*** 0.352 | -0.881*** 0.337 |
| Surplus to Budget | -3.340*** 1.315 | | | -3.077*** 1.294 | | |
| Surplus to Expenditures | | -2.176*** 0.819 | | | -2.101*** 0.833 | |
| Surplus to Revenue | | | -1.108*** 0.437 | | | -0.947*** 0.420 |
| Time Left on Charter | -0.100*** 0.035 | -0.100*** 0.035 | -0.101*** 0.036 | -0.103*** 0.038 | -0.105*** 0.037 | -0.103*** 0.039 |
| Bank of England Share Price Growth (1 year) | | | | | | |
| Bank of England Share Price Growth (2 years) | 4.534*** 1.351 | 4.558*** 1.426 | 4.614*** 1.307 | | | |
| Bank of England Share Price Growth (3 years) | | | | 3.017*** 1.117 | 3.181*** 1.102 | 2.905*** 1.161 |
| Log Likelihood Ratio | -19.654 | -19.472 | -19.754 | -21.320 | -20.947 | -21.678 |
| McFadden R-squared | 0.368 | 0.374 | 0.365 | 0.314 | 0.326 | 0.302 |

Notes: Robust Huber/White standard errors below coefficients
 * significant at 10% level ** significant at 5% level *** significant at 2.5% level

Table 3: OLS Results
 Dependent Variable: Percent Change in Bank of England Share Price

| | 1 | 2 | 3 | 4 |
|-------------------------------------|------------------|-------------------|-------------------|-------------------|
| Constant | -0.022 0.016 | -0.017 0.016 | -0.016 0.016 | -0.019 0.016 |
| Change in Surplus to Budget | | 0.286*** 0.080 | | |
| Change in Surplus to Expenditure | | | 0.190*** 0.053 | |
| Change in Surplus to Revenue | | | | 0.082*** 0.023 |
| New Charter | 0.053** 0.026 | 0.050* 0.026 | 0.047* 0.026 | 0.054** 0.026 |
| Time Left on Charter | 0.002** 0.001 | 0.002 0.001 | 0.001 0.001 | 0.002* 0.001 |
| R-Squared | 0.035 | 0.117 | 0.124 | 0.109 |
| Adj. R-Squared | 0.021 | 0.098 | 0.106 | 0.090 |
| D-W | 1.889 | 2.059 | 2.057 | 2.043 |

Notes: White standard errors below coefficients

* significant at the 10% level

** significant at the 5% level

*** significant at the 2.5% level

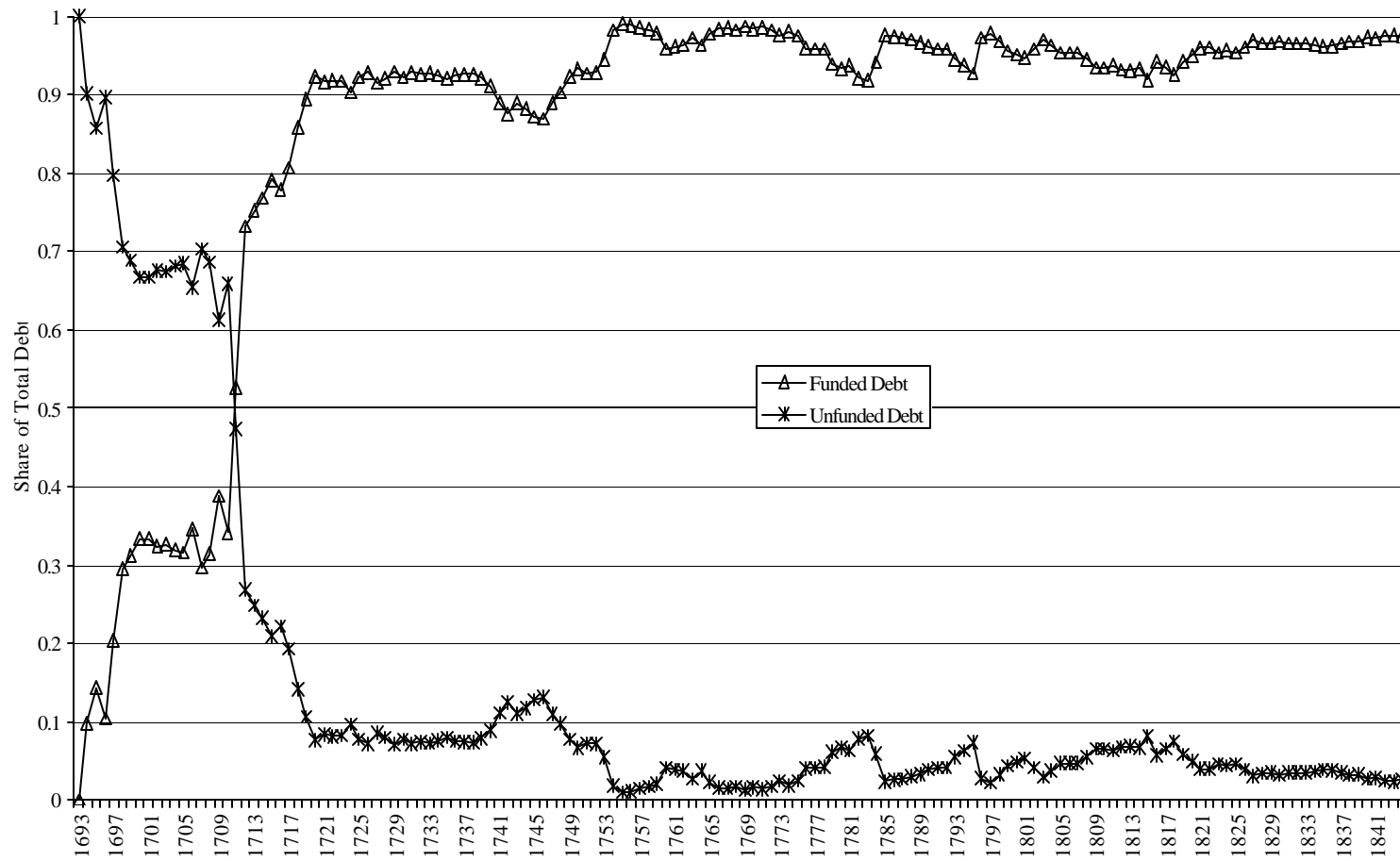
Table 4: Summary Statistics

| <i>Variable</i> | <i>Obs</i> | <i>Mean</i> | <i>Std. Dev.</i> | <i>Min</i> | <i>Max</i> |
|--|------------|-------------|------------------|------------|------------|
| Surplus to Budget | 151 | -0.0675 | 0.139291 | -0.49033 | 0.151491 |
| Surplus to Expenditure | 151 | -0.09722 | 0.226802 | -0.65802 | 0.357076 |
| Surplus to Revenue | 151 | -0.20344 | 0.401058 | -1.92412 | 0.263122 |
| Change in Surplus to Budget | 150 | 0.001372 | 0.089447 | -0.36519 | 0.462986 |
| Change in Surplus to Expenditure | 150 | 0.002345 | 0.141016 | -0.49481 | 0.692023 |
| Change in Surplus to Revenue | 150 | 0.00334 | 0.295697 | -1.30019 | 1.555989 |
| New Charter | 150 | 0.06 | 0.238282 | 0 | 1 |
| Time Left on Charter | 150 | 14.46667 | 7.916228 | 0 | 32 |
| Bank of England Share Price Growth (1 year) | 149 | 0.008675 | 0.089338 | -0.252819 | 0.252819 |
| Bank of England Share Price Growth (2 years) | 148 | 0.017573 | 0.135985 | -0.354174 | 0.467652 |
| Bank of England Share Price Growth (3 years) | 147 | 0.026181 | 0.163772 | -0.356283 | 0.771030 |

Table 5: Variable Descriptions and Sources

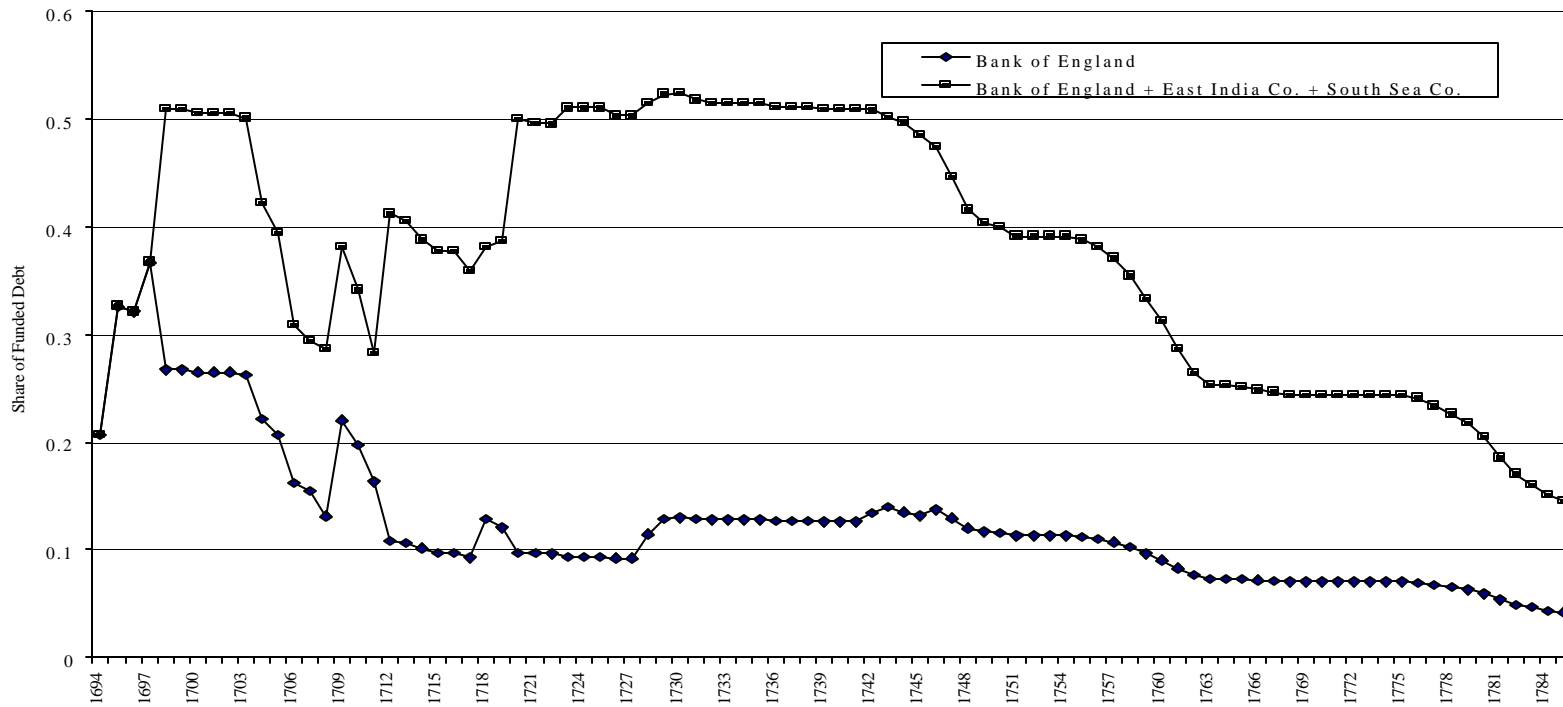
| <i>Variable</i> | <i>Description and Sources</i> |
|--|---|
| Surplus to Budget | $(\text{revenue} - \text{expenditure}) / (\text{revenue} + \text{expenditure})$. Mitchell, B.R. 1988. <i>British Historical Statistics</i> . |
| Surplus to Expenditure | $(\text{revenue} - \text{expenditure}) / \text{expenditure}$. Mitchell, B.R. 1988. <i>British Historical Statistics</i> . |
| Surplus to Revenue | $(\text{revenue} - \text{expenditure}) / \text{revenue}$. Mitchell, B.R. 1988. <i>British Historical Statistics</i> . |
| Change in Surplus to Budget | First Difference in Surplus to Budget. |
| Change in Surplus to Expenditure | First Difference in Surplus to Expenditure |
| Change in Surplus to Revenue | First Difference in Surplus to Revenue |
| New Charter | 1 in the year of a new Bank of England charter, 0 otherwise. British Parliamentary Papers, 1875; Acts of Parliament |
| Time Left on Charter | Years remaining on a charter. |
| Bank of England Share Price Growth (1, 2, and 3 years) | Percent change in the Bank of England share price over the previous one, two, or three years. <i>Global Financial Data CD-ROM</i> , 2000, series GBBEPM |

Figure 1: Funded and Unfunded Debt as a Share of Total Debt, 1693-1844



Source: B.R. Mitchell, *British Historical Statistics* (Cambridge: Cambridge University Press, 1988).

Figure 2: Government Debt to Chartered Companies as a Share of the Funded Debt, 1694-1786



Source: British Parliamentary Papers. 1898. Report of the Proceedings of the Commissioners for the Reduction of the National Debt from 1786-1890, together with A History of the Funded Debt From 1694-1786. National Finance—General, Vol. 7. Shannon, Ireland: Irish University Press.

Figure 3: Budget Ratios Before and After New Charters

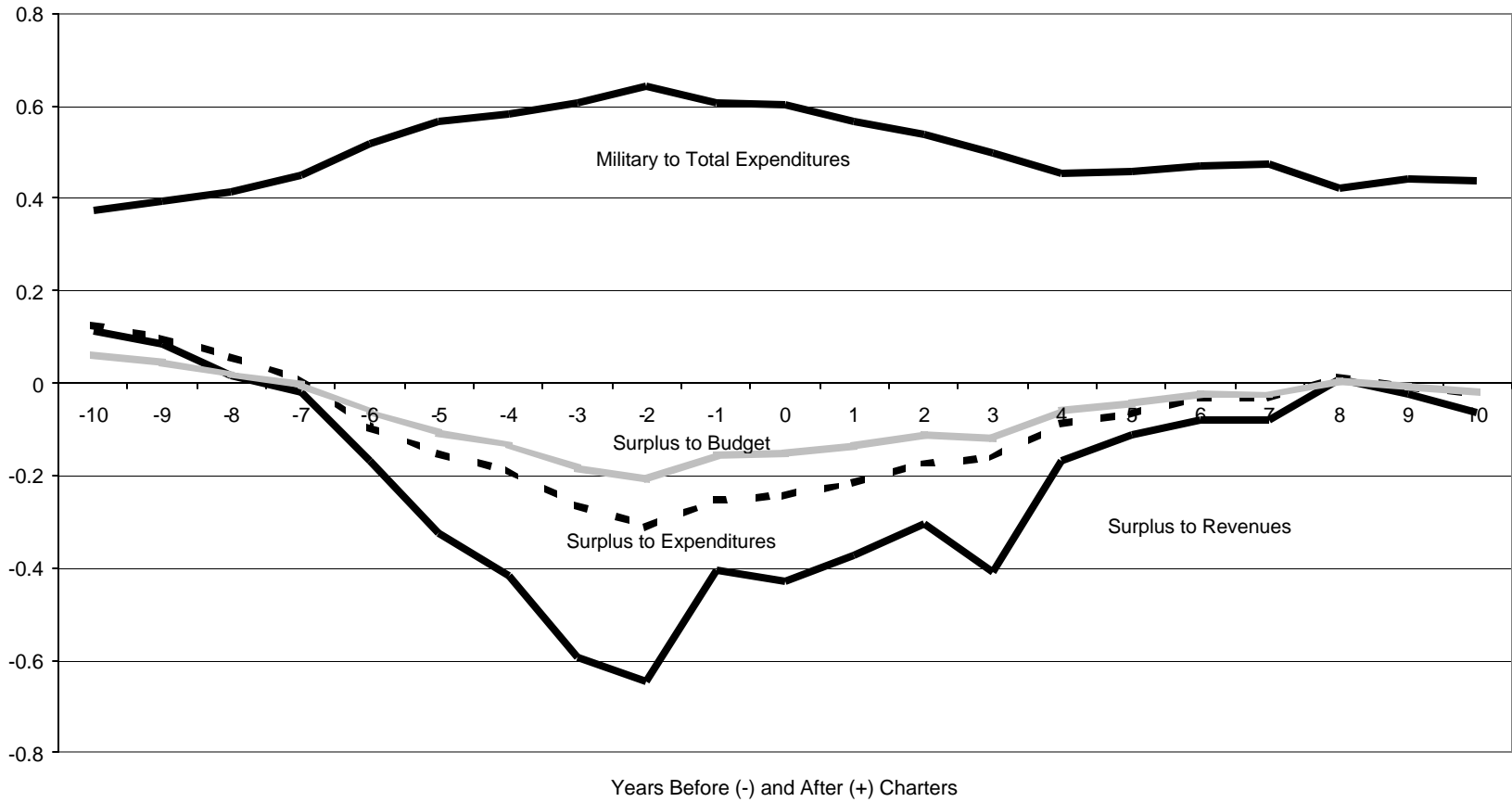


Figure 4a: Budget Ratio in Early and Late Recharterers

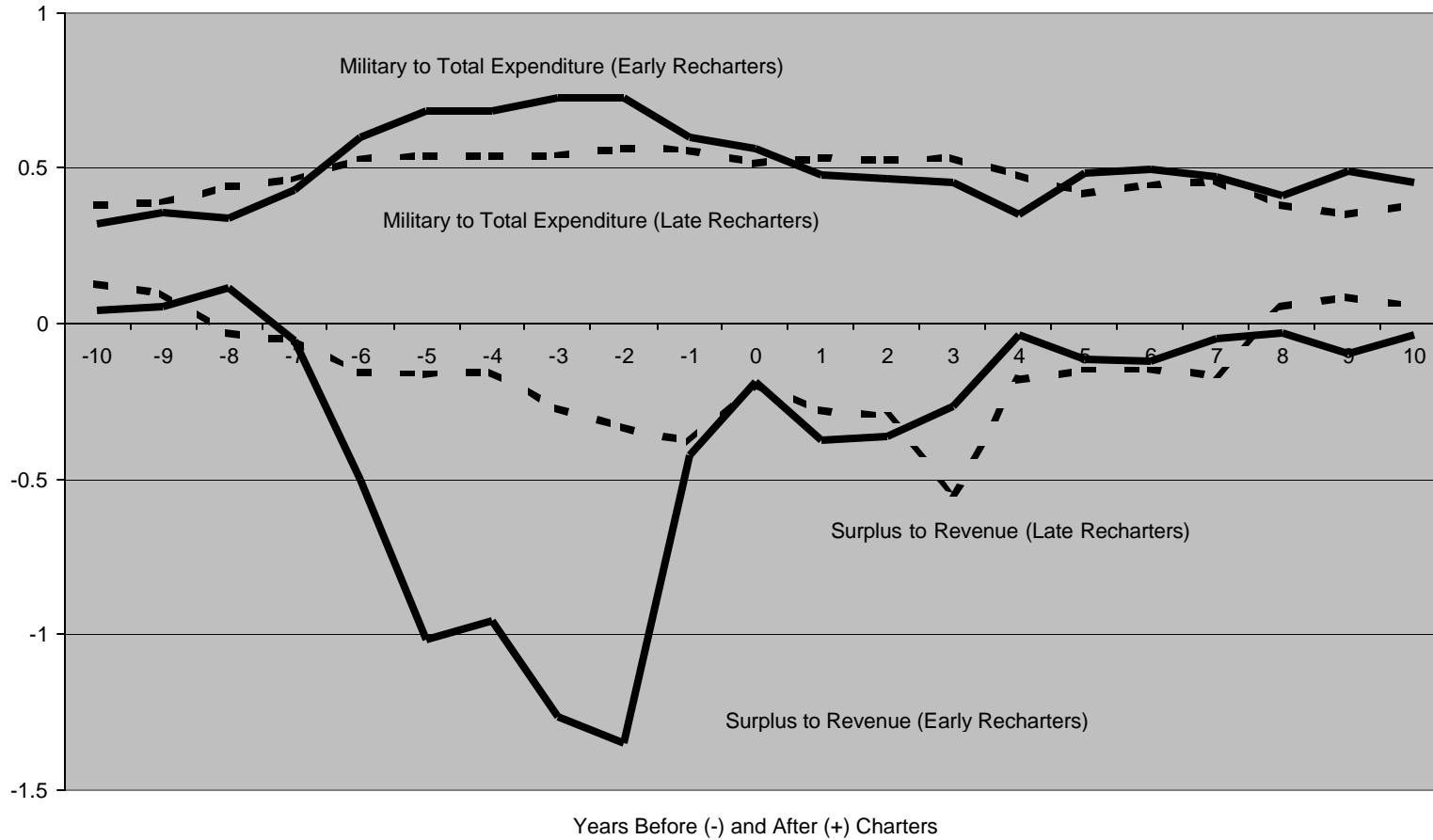


Figure 4b: Surplus to Expenditure and Budget Ratios in Early and Late Recharterers

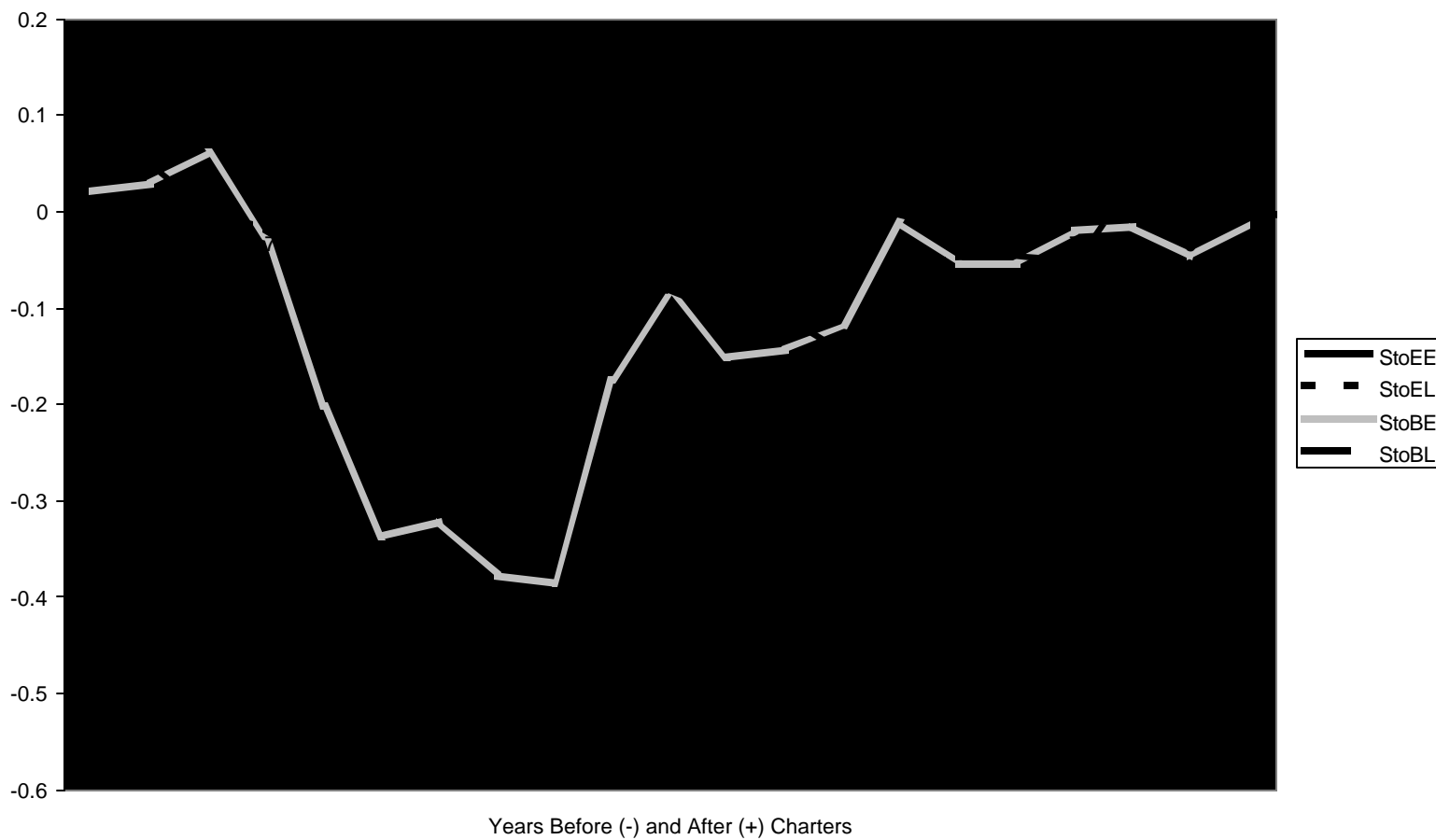


Figure 5: Price of Bank of England Stock Before and After Early and Late Recharters

