The Origins of National Debt:

The Financing and Re-financing of the War of the Spanish Succession

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ABSTRACT

The Origins of National Debt: Financing the War of the Spanish Succession

Financing the War of the Spanish Succession (1702-1713) among the then great powers of Europe (Austria, Britain, France, and Spain), left each with unprecedented burdens of government debt. The competitive experiments in dealing with the amassed debt that followed over the next decade left Britain alone as holding the key to success in convincing a large and diverse number of individuals to hold onto their claims against the government. We argue this was due to British institutions that allowed individuals to trade their claims with each other rather than being forced to redeem them from the government directly. We support our argument by analysis of the thousands of individuals who had acquired various forms of the British government's debt over the course of the War of the Spanish Succession when that debt was largely consolidated into the capital stock of the Bank of England, the East India Company, and the South Sea Company in 1723.

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They say it was a shocking sight
After the field was won;
For many thousand bodies here
Lay rotting in the sun;
But things like that, you know, must be
After a famous victory.

'And everybody praised the Duke
Who this great fight did win.'
'But what good came of it at last?'
Quoth little Peterkin.
'Why that I cannot tell,' said he
'But 'twas a famous victory.'

[Verses IX and XI from Robert Southey, *The Battle of Blenheim* as reproduced in Keegan, 1999.]

European historians think of the War of the Spanish Succession (1701-1714) as the first truly world war. While the conflict was strictly European, over whether a Bourbon or Habsburg monarch would succeed to the Spanish throne after the death in 1700 of the childless Charles II, the last of the Habsburg dynasty, it engaged European forces throughout the respective empires of Austria, Spain, France and Britain. The Great Northern War (1700-1721), which overlapped the War of the Spanish Succession, also engaged the existing empire of Sweden with the rising empire of Russia. Throughout Europe, therefore, the eighteenth century began with an extensive application of the military revolution in support of conflicting dynastic claims to power. The awesome military technology that had emerged with infantry, cavalry, and naval forces all fully armed with lethal artillery to wage battle on behalf of the belligerent powers proved increasingly expensive for each. (Parker, 1988) Earl J. Hamilton claimed, in fact, that these mounting expenses of modern warfare encumbered each power with

unprecedented amounts of accumulated debts – debts that formed the eventual basis for national debts as we know them today.[1] It is evident from the increasingly successful financing of future wars by the British crown that by 1725, as uneasy peace settled over an exhausted Europe, only Britain had devised a long-term solution to the problem of financing the ever-increasing expenses of modern warfare.[2] How Britain managed to do that while also laying the basis for occasional peacetime prosperity is the object of this paper. We argue that the key element was creating a large and diverse customer base for holding the government's debt in the form of easily traded securities – in short, establishing an efficient stock market in London.

We organize our supporting material by reviewing the extent and expense of the War of the Spanish Succession in section 1, focusing on the two main countries responsible for funding the expenses of that conflict – France and England – in section 2, examining the rise of public creditors for British government debt, both short- and long-term, in section 3, focusing on the distribution in holdings of British national debt with the refinancing of funded debt that occurred in the 1720s in section 4, and summarizing our evidence and arguments in section 5 to support our thesis that the key institutional development accounting for the long-term success of the British economy of the eighteenth century lay in the earlier development of an efficient secondary market for securities in London.[3]

1. The War of the Spanish Succession

The death in 1700 of the childless, and ineffectual, Charles II, last Habsburg king of Spain, was the proximate cause of the War of the Spanish Succession. His will specified that his successor should be Philip Bourbon, the Duke of Anjou, and the second

grandson of Louis XIV, king of France, on condition that Philip waive any claim he or his descendants might have for the throne of France. Even so, Philip's accession to the throne of Spain, with control of Spain's possessions in America and northern Italy, and his filial friendship with the monarch of France, threatened both Britain and Austria. Britain, because it was concerned about its Atlantic trade and its new allies, the Netherlands and Portugal, both determined to maintain their hard-fought independence from Spain. Austria, because it was concerned about its Italian borders, having barely repulsed the Turkish invaders in the siege of Vienna in 1683. Hostilities began in spring 1701 as Leopold I, Holy Roman Emperor, invaded northern Italy to ensure the Habsburg claim to possessions there. Initial successes of French land forces in Italy were countered eventually in northern Europe by a series of military victories by Britain and Austria, led respectively by the Duke of Marlborough and Prince Eugene of Savoy.

At sea, the British navy dominated, capturing the key ports of Port Mahon on the isle of Minorca and, the major prize, Gibraltar, which have helped maintain British naval domination of the Mediterranean ever since. In the Caribbean and North America, conflicts also arose, the main consequence of which were the conquest of Newfoundland by the British and the renaming of French Acadia as Nova Scotia. When the military colony of Georgia was founded in 1734, the British Royal Navy controlled all navigable ports of the eastern seaboard of North America from the St. Lawrence to the Savanna River. The strategic holdings acquired by Britain, therefore, presaged the naval dominance by the Royal Navy of the Mediterranean and north Atlantic trades for the next two centuries.

If the battle of Blenheim, fought on August 13, 1704, near the village of Blenheim, Bavaria was the "famous victory" alluded to in Robert Southey's poem, it was also the deciding battle in the War of the Spanish Succession. True, the casualties were enormous, with the British and Austrian forces losing 4500 killed and 7500 wounded, while the French and Bavarians must have been comparable, one estimate being 40,000 lost, of which 11,000 were taken prisoner. But the significance was that it determined the British and the Austrians to persevere in the hopes of final victory, while persuading the French to focus on the true prize, the crown of Spain for Philip V, the second grandson of Louis XIV, and destined to be the first Bourbon monarch of Spain. So the war and its mounting expenses continued.

French forces in Spain to support Philip's claim to the throne found they were backed by most of the Spanish population with the notable exception of Catalonia, so the French continued the war. One reason for French persistence was their access to the continued shipments of Mexican and Peruvian silver, both through Philip's French advisors and the French mercantile community present in Spain. French armies suffered repeated defeats, however, in Bavaria, the Spanish Netherlands, and even northern France. Ultimately, the Austrian claimant to the throne of Spain, the Archduke Charles of Austria, decided to satisfy himself with the throne of Austria when his older brother, Joseph I, died without an heir in 1711. Charles, having lost the support of Britain, reluctantly gave up his quest for the throne of Spain as Charles III, to become Emperor Charles VI of the Holy Roman Empire ruled from Vienna.

The British and French concluded their hostilities with the Peace of Utrecht in 1713, which transferred the Spanish Netherlands to Austria, but recognized Philip V as

King of Spain. Minor codicils of the Treaty of Utrecht granted the Asiento of the monopoly of the slave trade to Spanish America to the newly formed South Sea Company in England, confirmed British access to Hudson's Bay, and transferred French Acadia as well as Newfoundland to Britain. Charles VI continued his battles with the French, mainly in the hope of sustaining his control of Catalonia, but without British support he was defeated repeatedly by French forces and signed the Treaty of Rastatt and then of Baden in 1714. This confirmed that the Austrian Habsburgs controlled the Austrian Netherlands and northern Italy, while Prince Eugene was granted Sicily.

At the same time as the War of the Spanish Succession, the Great Northern War (1700-1720) was being waged sporadically between Sweden and Russia with occasional participation by Denmark, various German states (including Hanover then governed by the future George I of Great Britain), and the Ottoman Empire over the period 1700-1721. (An early success of John Law in his efforts to reform the finances of France after 1715 came when he reduced the expenses of the French court in providing subsidies to Charles XII of Sweden for that war.) Consequently, all European states incurred enormous expenses in support of professional armies equipped with the latest, and most expensive, means of killing each other, but forced to move large distances with massive logistical support from their home bases.[4]

2. Dealing with the debts created by the war

A period of intense experimentation with the management of each power's debt continued for a decade after the conclusion of the war, including the much-discussed and analyzed episodes of the Mississippi and South Sea Bubbles. By the end of 1723, however, the individual powers had settled their individual war debts in various ways.

Spain had re-financed under Philip V, essentially by turning control of the continued silver imports from Spanish America to court favorites who tried to limit his further military adventures, with varying success, but also by enlarging the tax base of the monarchy by including the revenues of the kingdom of Aragon in addition to those of Castile in the privileges of the crown. (Kamen, 2001) Austria, after refinancing long-term its wartime loan from England, turned to the mercantile riches of modern Belgium, which had become the Austrian, rather than the Spanish, Netherlands at the end of the war. Austria even tried briefly to break into the East Indies trade with an Austrian East Indies Company based in Ostend. Austria failed, however, to reform its tax base, which undermined its efforts in later wars of the eighteenth century. (Dickson, 1987) In the north, Sweden gave up its pretensions to great power centered on domination of the Baltic Sea, while Russia began its pursuit of great power under the aegis of Peter the Great. France, after the death of Louis XIV in 1715 found itself bankrupt and turned to increasingly desperate innovations that culminated with the collapse of John Law's *système* in 1720 and a segmented default of the outstanding debt in 1723 with eventual stabilization of the currency in 1726. (Murphy, 1997) Britain, after suffering a similar disaster with the collapse of the South Sea scheme later in 1720, worked out a re-organization of the South Sea Company by the middle of 1723. (Dickson, 1969; Neal, 1990)

The story of how Britain did it has been told convincingly by Dickson in his classic study on the financial revolution in Britain. (Dickson, 1967) While Dickson focused on the increasing use of funded long-term debt that could be credibly backed by Parliament, a perpetual and self-renewing institution, other elements that contributed to

Britain's success have been studied since. D. W. Jones (Jones, 1988) showed how the short-term financing of immediate war needs was developed over the course of William III's first war, the Nine Years War (1689-1697) also known as the War of the League of Augsburg, and then fully implemented in the succeeding War of the Spanish Succession (1702-1713). John Brewer (Brewer, 1988) demonstrated how the increased taxing ability of the English state managed to provide the increased revenues necessary to service ever larger amounts of outstanding permanent debt of the British government.

Our contribution in this paper is to elaborate on an idea expressed by Dickson himself "…if an efficient market in securities had not developed in London, where lenders could sell their claim to annual interest in return for a capital sum, the state would hardly have been able to float long-term loans without promising to repay them." (Dickson, 1967, p. 245) In this respect we are revisiting ground first surveyed extensively by Dickson. But since Dickson, the seminal work of North and Weingast (1989) identified the key change as the rise of Parliament's power vis-à-vis the king in Britain with the accession of William III and Mary to the throne during the Glorious Revolution of 1688. The instrument of Parliament's power then became the Bank of England, serving as a bureaucratic "delegated monitor" of the government's servicing of the ever-accumulating government debt. (Weingast, 1997; Stasavage, 2002) The idea that the Bank of England could serve effectively as the government's delegated monitor of its commitment to service the national debt in this early period has been attacked effectively, however, by Stephen Quinn. (Quinn, 2004 & 2005) Rather than the Bank of England serving as the government's instrument to serve as a commitment mechanism to service the government's accumulated debt, we argue that the secondary market for

government securities was the organizational innovation that served as a commitment mechanism. While the stock market in government debt developed rapidly after 1688 in London, the government's success in maintaining the marketability of the South Sea Company's securities after the collapse of the South Sea bubble in 1720 was the defining moment for this innovation in government debt. (Neal, 1990)

In particular, the refinancing of government debt by the South Sea Company in 1720 and then its re-organization in 1723 were the key developments for the success of the British in financing the subsequent wars of the 18th and 19th centuries. The South Sea Company's refinancing of government debt occurred in several phases. The first was in 1710 when the Company was chartered precisely for the purpose of absorbing the large quantity of short-term debt created for fighting the War of the Spanish Succession. The second came in 1719 with a minor expansion of its capital by converting a series of illiquid annuities issued during the War of the League of Augsburg. The most dramatic, of course, came with the South Sea Bubble in 1720, when the bulk of outstanding annuities were converted into the company's capital stock. But the most effective for the long-term, we argue, was the reconversion of half of the South Sea Company's equity in to perpetual annuities bearing 5% annual interest. Below, based on our intensive examination of the holders of the various forms of British debt that were issued during the War of the Spanish Succession, we argue that the British success was due its ability to establish a liquid secondary market for its debt after the collapse of the South Sea scheme.

The success of war finance practiced by Britain by the end of the Nine Years War depended, it is true, upon the payments mechanism operated by the Bank of England within the existing framework of trade finance based upon the four-part foreign bill of

exchange. It is important to realize that not only the key naval battles, but also the key military battles on land, were fought by British forces abroad. This meant that means of payment had to be found in Britain that were acceptable to merchants in Europe or the European colonies when they were asked to provision British naval or army forces. Briefly, the government would issue Exchequer bills to the Bank for which the Bank created credits for the government. The Bank then drew down these credits to purchase foreign bills of exchange from merchant bankers in London drawn upon their correspondents in the relevant European city – Amsterdam most often, but also Hamburg, Lisbon, Naples, Barcelona, or Genoa. The merchant bankers in those cities accepted the bills from London, but then used their credits against London to import desirable consumption goods from England, Wales, Ireland or Scotland, which could be re-exported goods from America or India as well.[5]

During the course of any war, a huge and growing amount of short-term debt was issued, most of it in the form of Exchequer bills that replaced the former wooden tallies, but there were also growing amounts of Army, Navy and Victualling bills as well. Tax revenues not rising as rapidly as the stock of outstanding short-term debt, the government's debt began to fall in purchasing value as suppliers accepted the bills only at increasing discounts. It was then that the government experimented with different forms of funded long-term debt that it would offer at a discount to the public – allowing the discounted short-term debt to be turned in and credited at face value in exchange for the new, long-term debt.

By far the most successful version of long-term debt for making such an exchange turned out to be stock in a new chartered company, granted an interesting monopoly of

some kind by the government. Table 1 below shows how advantageous the creation of the Bank of England in 1694 and the creation of the New East India Company in 1698 proved to be for the government during the Nine Years War. Interest due from the government proved to be only 8% to the two companies, compared to up to 14% required to sell much smaller amounts of single-life annuities. (The 1697 offering of £10 lottery tickets at 6.3% was not successful as it raised only £17,630!)

By the end of the War of the League of Augsburg, the long-term debt issued by the government of William III and Mary amounted to £6,900,000. The lessons learned about war finance from that experience were put to the test during the much larger conflict that followed in 1702. The first long-term debt was issued much sooner into the conflict, as shown in Table 2 below. Moreover, the rates of interest on all the forms of debt were consistently lower than in the last war of the 17th century, ranging from 6.6% to 6.25% and falling over the course of the war, before the huge conversion of short-term debt into the South Sea Company in 1710.

The evidence of Table 2 suffices to show that the War of the Spanish Succession resulted in unprecedented increases in the size of British government long-term debt. The total liabilities from this war alone amounted to £28,796,006 compared to the previous war's total of £6,900,000. Additional, much smaller, issues of 32 year lottery tickets were made in 1713 and 1714 to complete the financing of the war, but at the expense of an exhausted Treasury and discontented public forced to bear additional and continued taxes to service the accumulated debt.

Table 1. Government Long-term borrowing, 1693-98
(from Dickson, 1967, p. 48-49)

26 January 1693	£108,100	10% to 1700, then 7	Tontine loan
26 January 1693	£773,394	14%	Single-life annuities
8 February 1694	£118,506	14%	Single-life annuities
23 March 1694	£1,000,000	14%	Lottery of £10 tickets
24 April 1694	£1,200,000	8%	Bank of England
24 April 1694	£300,000	10, 12, and 14%	Annuities for 3, 2, 1 lives, respectively
16 April 1697	£1,400,000	6.3%	Lottery of £10 tickets
5 July 1698	£2,000,000	8%	New East India Company
TOTAL	**£6,900,000**		

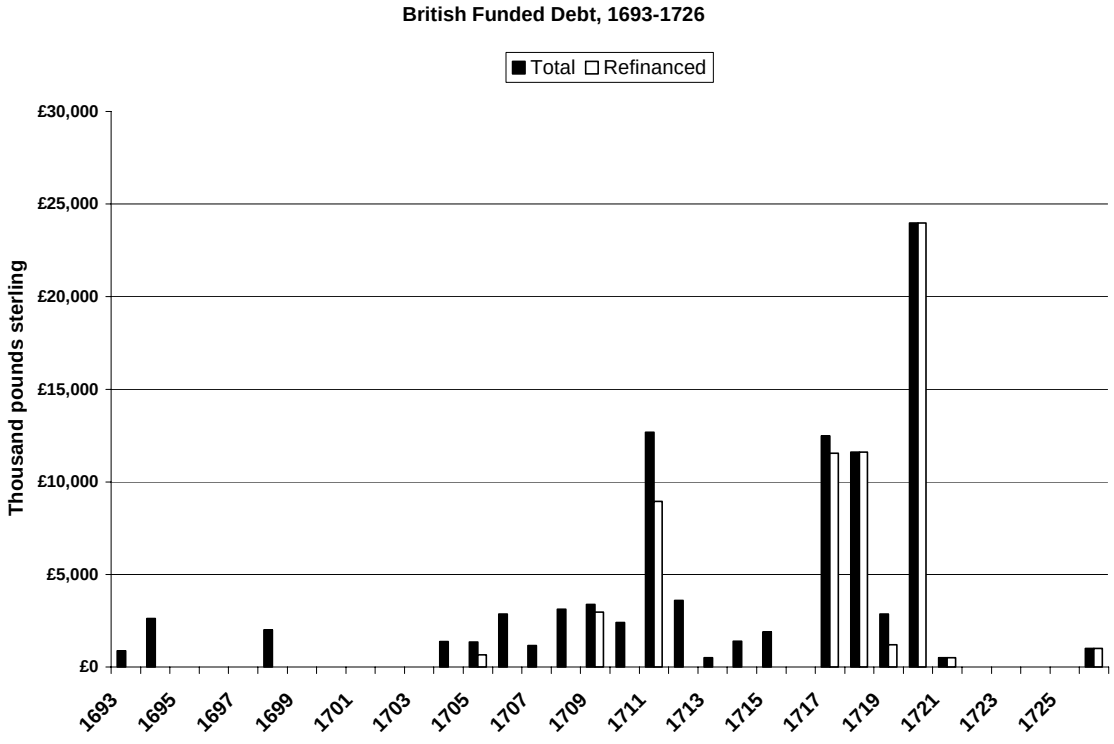
Table 2.
Long-term Government Borrowing during War of Spanish Succession
(Source: Dickson, 1967, p. 60-61, 63, 68.*)*

24 February 1704	£1,382,976	6.6%	99 year annuities 1, 2, 3, life annuities
16 January 1705	£690,000	6.6%	99 year annuities
16 February 1706	£2,855,762	6.4%	99 year annuities
27 March 1707	£1,155,000	6.25%	99 year annuities
13 February 1708	£640,000	6.25%	99 year annuities
11 March 1708	£1,280,000	6.25%	99 year annuities
18 January 1710	£1,500,000	9%	Lottery of £10 tickets
13 March 1710	£900,000	9%	32 year annuities
6 March 1711	£1,928,570	6%	Lottery of £10 tickets
12 June 1711	£9,177,968	6%	South Sea Company
12 June 1711	£2,602,000	6%	Lottery of £10 tickets
22 May 1712	£2,341,740	6%	Lottery of £10 tickets
21 June 1712	£2,341,990	6%	Lottery of £10 tickets
TOTAL	**£28,796,006**		

As the peacetime economy revived, especially after the successful quelling of the abortive Jacobite rebellion in 1715, the Whig administration of George I began to seek ways to refinance the accumulated debts. The Lords of the Treasury were most concerned about the 99 year annuities that had been issued throughout the war. Their high rates of interest and their "irredeemable" quality meant they could not be

repurchased even from a sinking fund. Successive Lords of the Treasury in turn devised plans to refinance the debt on more favorable terms. The pattern of issuing funded, long-term debt and then re-financing the less liquid forms of debt into more liquid forms is illustrated in Figure 1.

Figure 1. British Funded Debt, 1693-1726



Source: Stephen Quinn, 2005. Data kindly supplied by author.

The refinancing in 1705 was a conversion of single-life annuities into 99 year annuities; in 1709 the capital stock of the Bank of England was doubled to £4,402,343 (Grellier, p. 68); and the 1711 refinancing was the capital issues of the South Sea Company. The later refinancing issues in 1718 and 1719 were conversions of smaller annuity issues by the Bank and the South Sea Company, respectively. The successes of these minor refinancing efforts, combined with the evidence of the apparent success in 1719 of John Law's scheme for refinancing all of the French government's outstanding

debt into capital stock of the Mississippi Company, lay the basis for the South Sea episode of 1720.

The South Sea proposal was to convert all forms of the British debt issued over previous years, mostly during the War of the Spanish Succession, but also including some debts left over from the Third Anglo-Dutch War and the Nine Years War. In this effort, it actually succeeded in large part by the end of the summer of 1720; the problem was that the market price of its shares, largely held up by manipulations of the market by an inner circle of the South Sea's directors, collapsed in early October.

But, fortunately for later historians, the poor souls who had converted their holdings of government debt into claims on shares in the expanded capital of the South Sea Company over the course of 1720 were not simply paid off in depreciated stock or currency. Nor were they dismissed out of hand with records of their previous holdings burned to prevent future repercussions, as occurred in France when the authorities there dealt with the consequences of the collapse of the Mississippi Bubble. Rather, the British debtholders were compensated by splitting their claim on the capital of the South Sea Company in half, one-half to be a claim on the equity of a much reduced South Sea Company and whatever dividends it might produce in the future (never to include payments in stock as had brought about the collapse in the first place), and the other one-half as a claim on perpetual annuities that the government pledged to pay 5 per cent for five years before reducing to 4 per cent.

The latter was, we argue, the defining financial innovation that succeeded so well in reviving the market for government debt that as future wars occurred they were financed primarily by issuing comparable perpetual annuities that were direct claims on

the government. The accumulated mass of 3% perpetual annuities issued nearly annually during the course of the following War of the Austrian Succession led eventually to consolidation of all of them into the Three Per Cent Consols in mid-century. The Consol then became the dominant form of British national debt thereafter, overshadowing the continued holding of long-term national debt by the Bank of England, the East India Company and the South Sea Company. Future wars by Britain were all characterized by fresh issues of Three Per Cent Consols, and all, with the exception of the War of American Independence, were won by Britain.

3. The "customer base" for British government debt

Despite the obvious interest in the identity of the holders of British government debt and their motives for holding it, Dickson could find no contemporary calculation made by the government and was forced to make rough calculations of his own from the surviving records. (Dickson, 1967, ch. 11) A clear distinction occurred at the beginning of issues of funded debt between the Tontine and Lottery Tickets, issued in small denominations, and issues of shares in the new chartered companies such as the Bank of England, the East India Company, and the South Sea Company, that were issued syndicates comprised of wealthy merchants and gentry. For example, Table 3, derived from Dickson's Table 31, contrasts the dominant role of small holders in the 1693 Tontine compared to the 1694 Bank of England subscription, and the more unequal distribution of holdings in the Tontine than in the Bank's capital stock.

Table 3.
Distribution of subscribers to initial funded debt issued in 1693-94
(Source: Dickson, 1967, Table 31, p. 255)

	Tontine 1693				**Bank of England, 1694**			
Under £500	1,107	88.1%	£180,000	60.5%	442	34.9%	£77,700	6.5%
£500-999	118	9.4%	£70,700	23.8%	435	34.3%	£227,150	18.9%
£1,000-4,999	32	2.5%	£46,700	15.7	347	27.4%	£571,250	47.6%
£5,000-9,999	0	0	0	0	32	2.5%	£203,900	17.0
Above £10,000	0	0	0	0	12	0.9%	£120,000	10.0%

By the successive re-financings of the annuities that had been issued during the preceding wars, the South Sea Company ended up with the bulk of the government's debt, exchanged for shares in its greatly expanded capital stock during the infamous Bubble year of 1720. But when it was re-organized under the administration of Robert Walpole in 1723, £4 million of its capital stock of roughly £38 million had been transferred to the Bank of England and the remaining £34 million was split in half. Half formed the capital stock of the trading company, which Spanish Asiento notwithstanding, had no future in trade with Spanish America or even the Greenland whalery, and was wound up in January 1751, as part of the general consolidation of government debt carried out by Henry Pelham. The other half was given pro rata to the stock holders as perpetual

annuities bearing 5% annual interest for the next 5 years, and then to be reduced to 4% (and then further reduced to 3% in the 1751 consolidation of government debts). Dickson made a valiant attempt to analyze these ledgers, still preserved in the archives of the Bank of England, to determine the composition of the holders of government debt, or as we term it, the "customer base" for the emerging London stock exchange.

Table 4 below summarizes his estimates of the rough distribution of holdings of government debt over the period 1719-24. For the 5% annuities of 1717, and the South Sea stock, he was forced to take relatively small samples of the holders, hoping that these would approximate a random sample of the total stock of each security. For the Bank of England and the East India Company, he took their respective stocks as of 25 March 1724 when dividends were paid out to the stock holders. Below, we present our more precise calculations of the total distribution of holdings of South Sea stock as of 1723, Bank of England stock as of 1725 after its capital expansion, and the East India Company in 1719. The general picture remains much the same as Dickson portrayed it, much to his credit.

Thanks to modern technology and funding from the National Science Foundation, we have determined the holdings of each stockholder in the Bank of England for 1720 and 1725, (Carlos and Neal, 2005), the holdings of each stockholder in the East India Company in 1719, and the holdings of each stockholder in the South Sea Company in June 1723. Tables 5 and 6 demonstrate how little change in the distribution of holdings in the government's funds had occurred as a result of the South Sea Company's re-finance of illiquid forms of government long-term debt for the Bank of England and the East India Company. The South Sea Company's distribution, by contrast, contained a

much higher proportion of small holdings. Figures 2, 3, and 4 show the respective Lorenz curves for the total distribution by size of book value of each stockholder in the three companies whose stocks comprised the bulk of "the funds" at this time.

Table 5. Distribution of Stock Holdings in Bank of England (1725) and East India Company (1719)

	Bank	**1725**			**East India**	**1719**		
Amounts	No.	Pct.	Pounds	Pct.	No.	Pct.	Pounds	Pct.
Under £500	1,309	26.6	£282,317	3.2	305	18.9	£57,375	1.9
£500-1,000	1,177	23.9	£680,482	7.6	503	31.2	£284,565	9.4
£1,000-5,000	2,038	41.4	££3,787,003	42.3	665	41.3	£1,263,703	41.9
£5,000-10,000	256	5.2	£1,631,705	18.2	92	5.7	£624,920	20.7
£10,000-above	141	2.9	£2,572,328	28.7	47	2.9	£787,734	26.1
SUM	4921	100	£8,953,835	100	1,612	100	£3,018,296	100

Source: Bank of England Archives; India Office Records.

What emerges clearly from the tables is the relatively similar distributions of holdings of Bank and East India stock in the later years compared to the estimates made by Dickson for the earlier years before the War of the Spanish Succession. By contrast,

the holdings of South Sea Annuities became much more unequal after the refinancing operations of 1720 and 1723, reflecting the merging in its capital stock of the mass of small holdings of various annuities that had been issued in small denominations throughout the War of the Spanish Succession.

Table 6. Distribution of South Sea Stock in 1723

South Sea	**1723**			
Quantile	No.	Pct.	Amount	Pct.
Under £500	14,932	69.2	£2,293,404	13.7
£500- 1,000	2,976	13.8	£1,992,112	11.9
£1,000-5,000	3,100	14.4	£6,215,900	37.0
£5,000-10,000	376	1.7	£2,470,549	14.7
£10,000-above	193	0.9	£3,820,385	22.8
SUM	21,577	100	£16,792,349	100

Source: Bank of England Archives, AC27/6437-6480.

For precise comparisons, the calculated Gini coefficients of inequality are: Bank stock, 0.64; East India stock, 0.62; and South Sea Annuities, 0.74.

Table 3. Distribution of holdings of 5% annuities (1719) and South Sea Stock (1724)
Source: Dickson, 1967, Table 37, p. 274.

	5% annuities				South Sea stock			
Distrib'n	**Nos.**	**%**	**£**	**%**	**Nos.**	**%**	**£**	**%**
Under £500	1,073	62.9%	£193,415	14.3%	466	55.2%	£94,528	8.8%
£500-999	280	16.4%	£182,842	13.6%	141	16.7%	£93,650	8.7%
£1,000-4,999	315	18.5%	£585,557	43.3%	184	21.8%	£387,392	36.2%
£5,000-9,999	25	1.5%	£155,617	11.5%	41	4.9%	£272,956	25.5%
Over £10,000	11	0.7%	£234,324	17.3%	12	1.4%	£222,696	20.8%

Table 4. Distribution of holdings of Bank stock (1724) and East India Stock (1724)
Source: Dickson, 1967, Table 37, p. 275.

	Bank of England				East India Company			
Distrib'n	**Nos.**	**%**	**£**	**%**	**Nos.**	**%**	**£**	**%**
Under £500	1,116	24.0%	£242,629	2.7%	479	25.3%	£92,480	2.9%
£500-999	1,204	25.8%	£684,323	7.6%	518	27.4%	£292,330	9.2%
£1,000-4,999	1,941	41.6%	£3,638,158	40.6%	765	40.4%	£1,427,708	44.7%
£5,000-9,999	262	5.6%	£1,692,021	18.9%	82	4.3%	£541,396	16.9%
Over £10,000	139	3.0%	£2,702,865	30.2%	48	2.6%	£840,166	26.3%

The total number of Bank stockholders in 1725 was 4,921; East India Company stockholders numbered 1,610; and South Sea Annuities holders acquiring their annuities from their original holdings of South Sea stock amounted to 21, 577 – a total of 28,108. This does not count, of course, the remaining holders of the annuities that had not been converted into South Sea stock, which Dickson estimated numbered roughly 5,000. We come up with 33,000 individuals holding parts of the British government's accumulated long-term debt after the collapse of the South Sea bubble. Dickson estimated 40,000, mainly because he guessed a much higher number of South Sea stockholders – 30,000 compared to the actual number of 21,577. But he underestimated the Bank's stockholders, using the figure from 1712 of 3,894 instead of the actual number in 1725 of 4,921. The East India Company's stockholders remained largely unaffected by the refinancing at this time.

Figure 2. Lorenz curve for Bank of England Stock Holdings, 1725

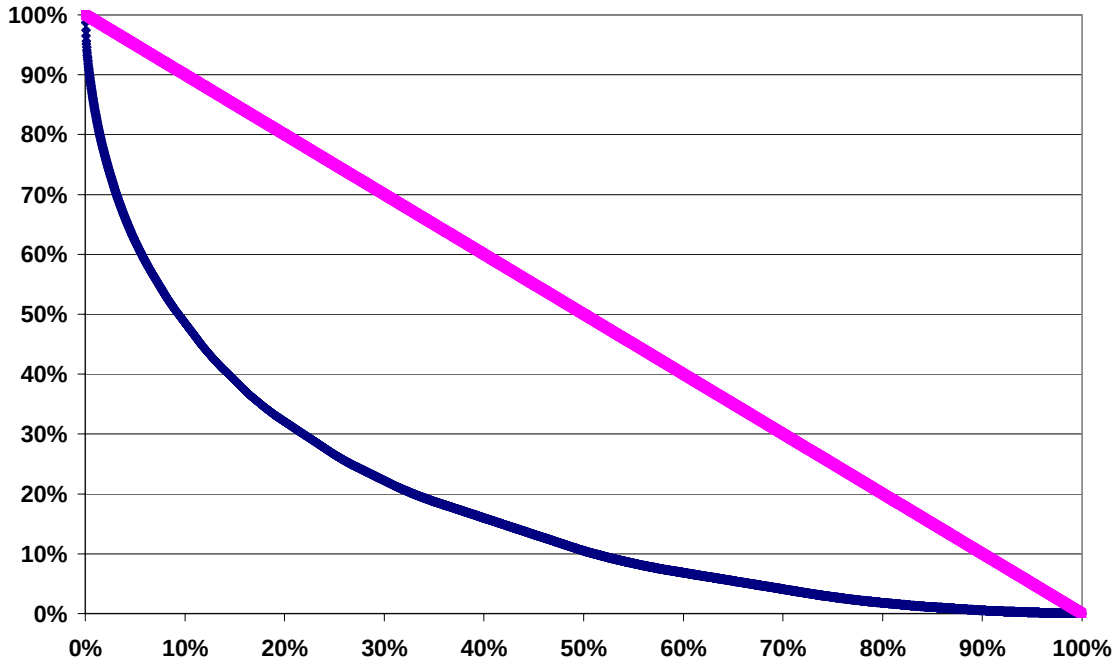


Figure 3. Lorenz Curve -- EIC stock, 1719

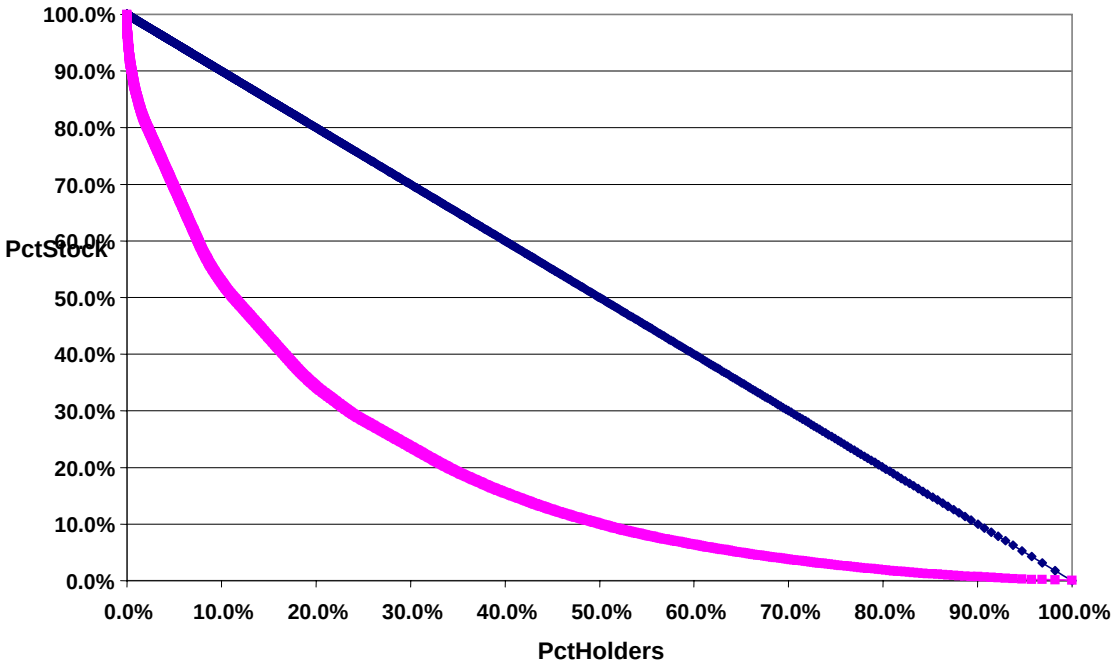
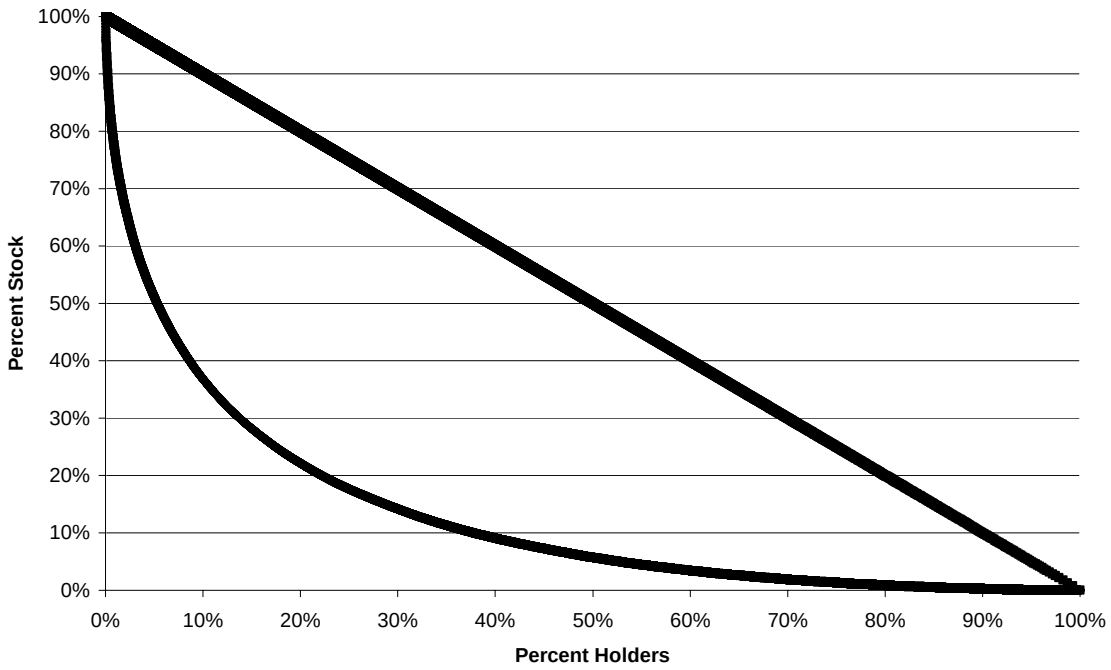


Figure 4. Lorenz Curve - South Sea Annuities, 1723



To summarize, the holders of government debt via shares in the Bank of England and East India Company were mainly merchants and professionals, often holding the

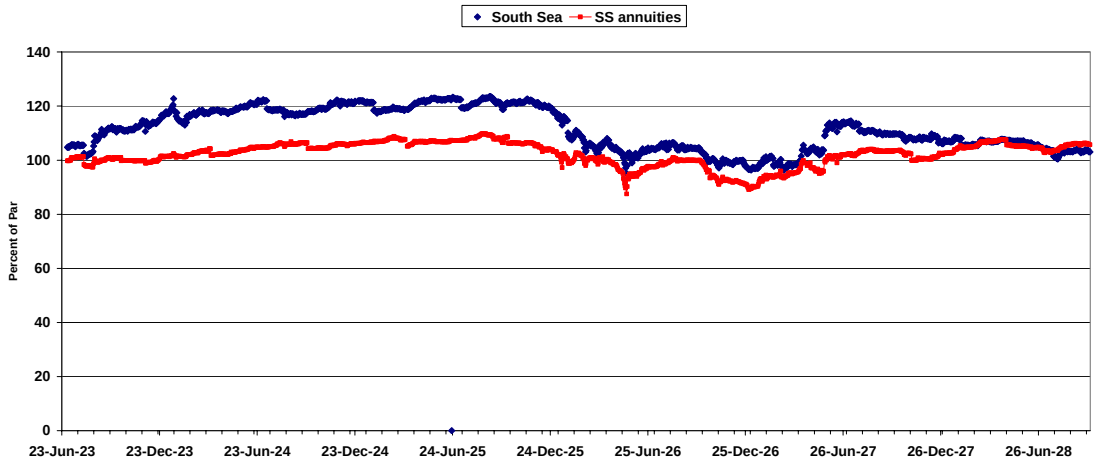
£500 minimum stock needed to have a vote in the General Court assembled twice a year to review the business operations of the company. By contrast, the holders of government debt via shares in the South Sea Company after the debt for equity swap of 1720 were more diverse samples of the English population and typically held much smaller amounts. For example, a listing of all the South Sea stockholders eligible to vote on the restructuring plan of 1723 counted only 4,123 individuals with voting power, meaning that 17, 455 had stock, but no vote. Of the 4,123 voters, only 243 were entitled to 4 votes, another 442 to 3 votes, and 639 to 2 votes, and the remaining 2,799 were limited to one vote apiece. (South Sea Company, 1723)

The standard interpretation of the South Sea's skewed distribution of holdings is that it was very much an upper-, ruling-class affair, headed by George I as titular Governor of the company and entitled to three votes. Our attention, by contrast, focuses more on the huge majority of stockholders whose only economic interest in the shares or annuities now became only the annual income derived from them, as had been their interest in the original lottery tickets or annuities purchased earlier. Both the shares and the annuities of the South Sea Company, however, had the improved quality of liquidity, which had been totally absent from the earlier securities. Not only could holders divest themselves more easily of these new securities if other investment or consumption needs arose, but they could also pledge them as collateral against loans of varying amounts and duration for financing investment or consumption opportunities. To show that these possibilities were realized in large numbers, indeed, we demonstrate the activity of several specialist traders in the annuities.

4. Trading in the South Sea Annuities, 1723-1728

An active market developed immediately in the annuities, more so than in the shares of the reduced capital of the South Sea Company allotted to the initial stockholders. The price of the annuities held remarkably steady during the following years, as shown below. Clearly, the turmoil of the bubble year of 1720 was put safely behind the participants in the London stock market with the successful re-organization of the South Sea Company's affairs in 1723, and with the completion of the government's refinancing of its long-term debt.

Figure 5. South Sea Company shares & annuities, 1723-1728



To date, we have managed only to track the trading activities of three of the most active dealers in South Sea Annuities, as indicated by the extent of their ledger entries in the ledger accounts. The three jobbers encoded to date are Henry Carington, Christopher Whitmore, and Edward Elliott. Other dealers we have looked at include Robert Westley, whose main activity seems to have been in Bank of England stock, rather than the South Sea Annuities. The results for the professional jobbers are summarized in Table 5.

Table 5. Dealers' Activities in South Sea Annuities, 1723-28.

Henry Carington				
Buys	2,797	£525,233	Avg.	£187.72
Commissions		£5,252.33	Max.	£2,056.25
Brokerage		£656.54	Min.	£0.00
Sells	2,956	£523,525	Avg.	£177.05
Commissions		£5,235.25	Max,	£2,000
Brokerage		£641.41	Min.	£0.00
Christopher Whitmore				
Buys	2,546	£230,749	Avg.	£90.60
Commissions		£2,307.49	Max.	£1,000
Brokerage		£288.44	Min.	£0.00
Sells	2,775	£230,339	Avg.	£82.92
Commissions		£2,303.39	Max,	£1,000
Brokerage		£287.92	Min.	£0.00
Edward Elliott				
Buys	1,319	£116,201	Avg.	£88.10
Commissions		£1,162.01	Max.	£1,000
Brokerage		£145.25	Min.	
Sells	936	£114,946	Avg.	£122.94
Commissions		£1,149.46	Max,	£1,000
Brokerage		£143.68	Min.	£0.00

Source: Bank of England Archives, AC27/6439, 6441, 6452.

By far the most active jobber was Henry Carington. According to Dickson, he was a professional dealer in government securities in the 1730s and 1740s. (Dickson, p. 512) Over the course of the first five years of the new securities, Carington was the counterparty for no fewer than 5,753 separate transactions amounting to over £1 million book value of the security. If we calculate his average commission at one percent of the book value of the security, he earned over £10,500 over the five years, 1723-1728, from his broker functions alone. Brokerage fees, which he must have collected as well, amounted to another £1,300. By 1727, he was drawing annual returns of £150 as well

from the 5% dividends on his average holdings of £3,000. As a jobber in constant contact with the market for the securities, he obviously could have made either more money from imposing a bid-ask spread on his clients. Or, possibly, he waived the commissions and made his money from the spread, or "turn" as the jobbers termed it.

Christopher Whitmore was nearly as active as Carington in total number of transactions, but fell far short in terms of total value. Consequently, his commissions and brokerage fees, while still substantial, fell well below those of Carington. Dickson noted that Whitmore, "'of St. Andrews, Holborn, Broker'," was an active jobber in the 5% annuities of 1717. (Dickson, p. 498) It is clear that Whitmore continued to be a professional jobber in the decade following the South Sea Bubble. Just his commissions alone would have made him one of the wealthier professionals in London at the time, and like Carington, he earned brokerage fees as well as the 5% annual dividends from the increased stock of annuities that he acquired by 1725. (Figure 6 below)

Figure 5. Holdings of Henry Carington in South Sea Annuities

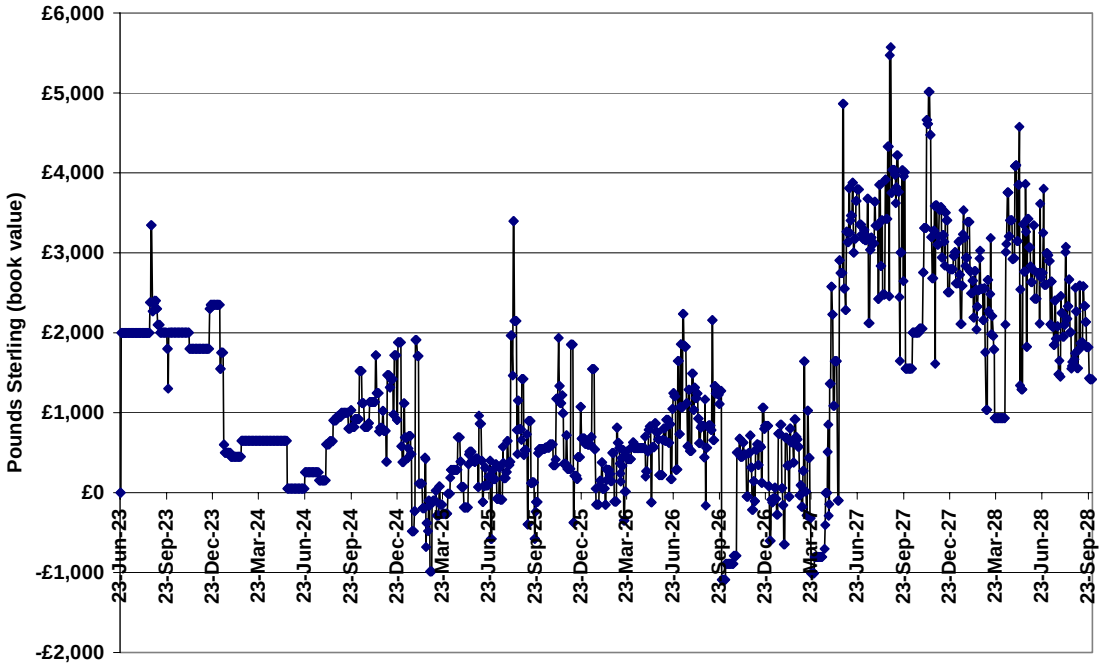


Figure 6. Christopher Whitmore, 1723-28

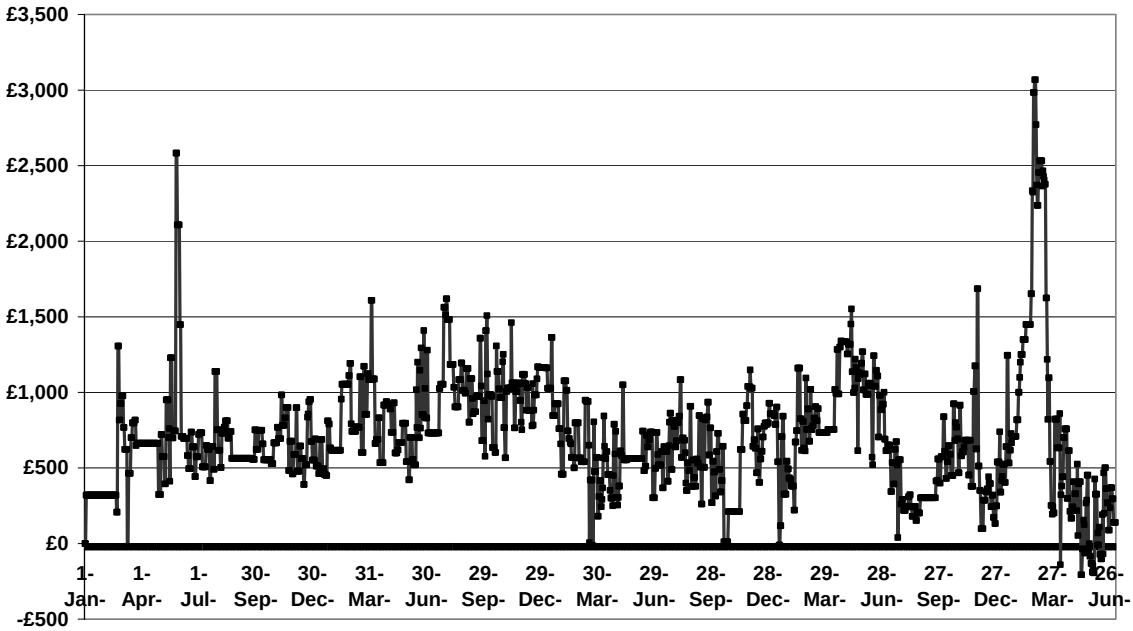


Figure 7. Holdings of Edward Elliott in South Sea Annuities, 1723-28

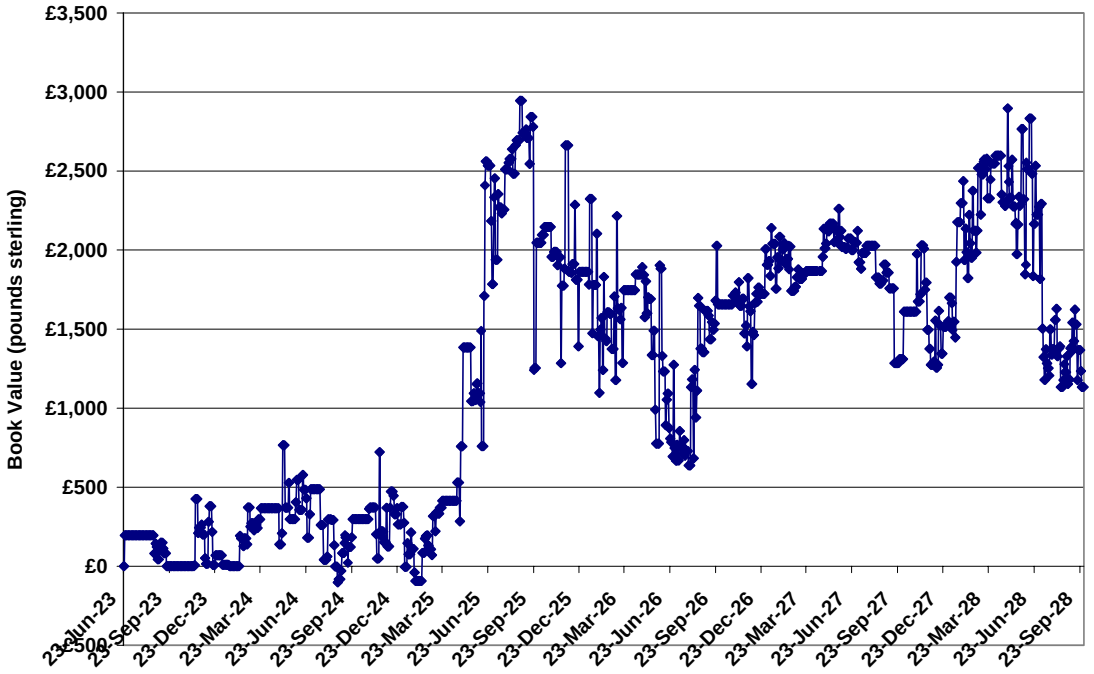
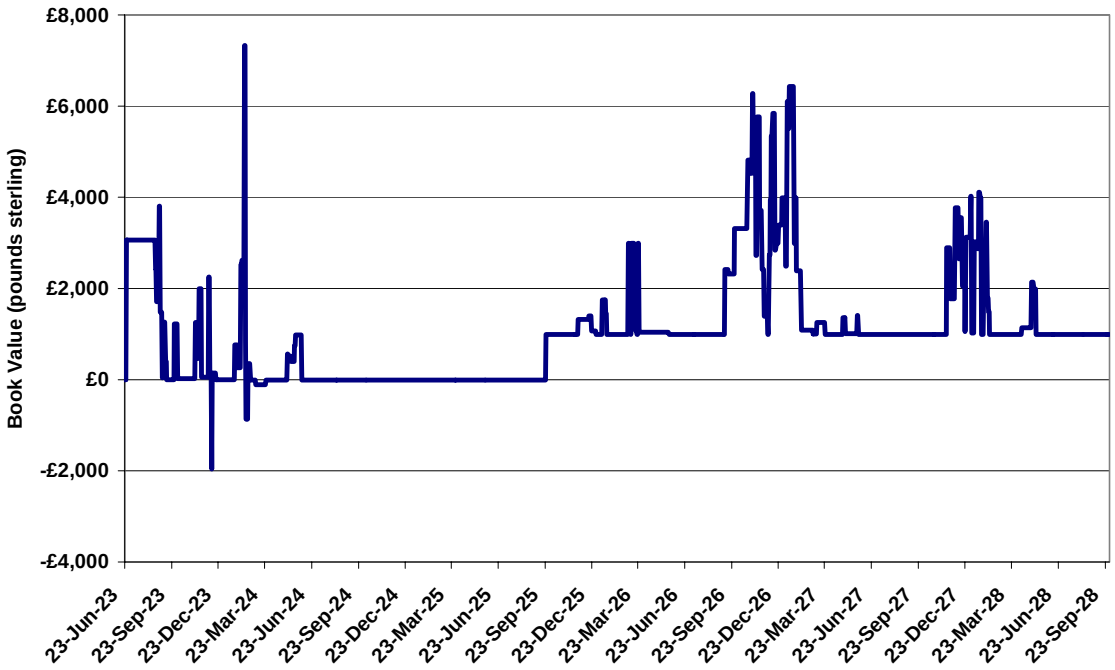


Figure 8. Holdings of Robert Westley in South Sea Annuities, 1723-1728



Edward Elliott of Foster Lane, London, was also an active dealer. Elliott made 935 purchases and 1319 sales of South Sea annuities over the period 1723-1728. The average purchase was £122.91 with the largest only £1,000 and the smallest 2 shillings 7 pence! The average sale was £88.19 with the largest again only £1,000 and the smallest less than a pound. Figure 7 shows that eventually he moved from being strictly a broker-dealer to holding a substantial amount of the annuities himself.

In summary, the 35,000 individual accounts in South Sea Annuities were active, not passive, accounts. The small account holders had no difficulty in cashing out, or buying in, however small the amounts might have been. A class of professional jobbers that had arisen previously – and been subjected to repeated calumnies in the press, poems, tracts, and Parliamentary speeches – persevered in their activities on an even larger scale after the infamous episode of the South Sea bubble. The service they rendered to the British public was appreciated in the most telling way possible, by the significant incomes they earned while providing instant counterparties to individual holders of government debt. Maintaining an open, transparently priced, secondary market for British national debt throughout the remaining century, the much-maligned stock jobbers enabled the British government to issue new debt whenever the need arose. Consequently, Britain was able to win its future wars, but also to benefit from a thriving capital market during peacetime.

5. Conclusion

What emerges from our analysis is a picture of remarkably widespread and long-term holdings of government debt in its various forms. Consolidating the mass of government debt into easily transferable claims on the respective chartered companies

was the initial innovation during the two wars that followed immediately the Glorious Revolution of 1688. The next innovation was to refinance the other forms of government debt into the capital stock of the South Sea Company. Even with the collapse of the South Sea Company's finances in 1720, the re-organization of its equity into part shares in a trading company and part perpetual annuities passing on the government's interest payments to the company maintained the liquidity of British government debt. By the end of 1723 the British had created marketability of their government debt to an unprecedented, and, until the conclusion of the Napoleonic Wars nearly a century later, unparalleled extent.

Analyzing the rate of turnover of the respective claims shows, we argue, the importance for the British success in war finance of marketing its debt, and this success in turn depended on the rise and continued expansion of an active stock market in London, which arose in response to the long-term attractiveness to an increasing number of individuals of the specifically British government debt. While the attractiveness of the British debt rested in large part on the continued servicing of the interest on the debt by Parliament, well-documented and argued by John Brewer, the British debt was also attractive because it could be readily re-sold in a secondary market with little difficulty and minimum cost in terms of expense or delay. The increased willingness of the investing public to hold issues of British debt then relaxed permanently the inter-temporal budget constraint faced by succeeding governments confronted by renewed demands of war finance.

We feel confident in arguing that the British financial experiments induced by the demands of finance for the War of the Spanish Succession were not only a permanent

economic legacy of that war, but in the long run provided an economic benefit for the British economy that ultimately derived from the financial consequences of that war.

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Endnotes:

[1] Earl J. Hamilton, "Origin and Growth of the National Debt in Western Europe," *American Economic Review*, 37 (May 1947), pp. 118-130. Hamilton's paper, contributed to an invited session on "Public Debt: History," at the 1947 meetings of the American Economics Association, focused on the rise of national debts for France and Great Britain and covered the period from the early modern period to the eve of World War II. He did not identify the War of the Spanish Succession as the key event for either country, but his later work focused on the grand experiment of John Law to solve the debt problem left for France by the expenses of that war.

[2] It is worth noting that the other major war in Europe that overlapped in time with the War of the Spanish Succession, the War of the Northern League (

[3] Throughout this paper, and indeed, throughout the years of research that have preceded this paper, we acknowledge the prescience of P. G. M. Dickson in his magisterial work on the British financial revolution. Specifically for this paper, his comment, "Other conditions, which have still to be examined, were clearly of equal importance. For example, … an efficient market in securities…in London." (Dickson, p. 245), is most appropriate.

[4] See John Lynn, *The Wars of Louis XIV, 1667-1714*, London, New York: Longman, 1999, and John Lynn, ed., *Feeding Mars: logistics in Western warfare from the Middle Ages to the present*, Boulder, CO: Westview Press, 1993.

[5] When the system was used later in the 18th century to pay Hessian mercenaries to fight on behalf of British interests, Adam Smith remarked that England had managed to export soldiers in the form of pottery and cloth. (Wealth of Nations, Book IV)