Securitization of Sovereign Debt: Corporations as a Sovereign Debt Restructuring Mechanism in Britain, 1688-1750*

Stephen Quinn†

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Abstract

This paper shows how early eighteenth century Britain used corporations to simultaneously securitize and restructure sovereign debt. The paper uses the economic principles characterizing sovereign debt and securitization to frame the story of how the Bank of England, the South Sea Company and the East India Company came to collectively hold 80 percent of the British national debt by the end of 1720. After 1720, Britain continued to restructure, but now it reduced the role of securitization. The long arc of the restructuring processe (1688 to 1750) transformed the British national debt from a poorly coordinated, heterogeneous, illiquid and expensive pool of funds into a modern-style national debt.

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†Department of Economics, Box 298510 Texas Christian University, Fort Worth, TX 76129. Phone: 817.257.6234. Email: s.quinn@tcu.edu.

1 Introduction

From the Glorious Revolution of 1688 to the South Sea Bubble of 1720, Britain had 8 major debt restructurings and no unilateral defaults.[1] Successful voluntary restructurings are important because emerging-markets countries often restructure their sovereign debts in ways that are coercive, inefficient and destabilizing. Moreover, the British restructurings were transformative, for Britain finished the restructuring process with the fiscal credibility and financial infrastructure common to developed economies. Indeed, the British process invented the template for credible sovereign debt oriented around the agency of a central bank.[2] This paper offers a unifying explanation of how and why Early Modern Britain structured and restructured its national debt by intersecting two distinct areas of analytical investigation: sovereign debt and securitization.

Common agency, meaning one sovereign having many creditors, explains *why* Britain had debt problems typical to emerging market countries (Tirole 2002). Common agency creates a moral hazard whereby a country issues too much debt in a structure that is heterogeneous and illiquid. Securitization explains *how* Britain mitigated these problems. When the Bank of England, the East India Company and the South Sea Company owned government debt, their stock was a homogenous, liquid claim on the sovereign debt pooled within the corporations.[3]

To gain voluntary participation, Britain *combined* corporate securitization with debt restructuring and corporate privileges. The interaction of these three elements created sufficient incentives for multi-party agree-

[1] Restructurings using the Bank of England occured in 1697, 1709, 1717 and 1718. Restructurings using the South Sea Company occurred in 1711, 1718, 1719, and 1720. By *restructuring*, this paper means that terms of a debt contract were changed without the principal being repaid. If the principal was repaid, then the operation is called *refinancing*.

[2] Holland's "financial revolution" preceeds Britains, but it was built on the agency of tax receivers instead of a central bank.

[3] Corporate stock was homogeneous, easily transferred, and enjoyed a deep secondary market supported by brokers, dealers and a financial press. See Neal 1990 and Carlos *et al* 2005. The origins of a liquid stock market go back to the Dutch East India Company (Geldeblom and Jonker 2004).

ments.[4] Britain gained concessions from creditors, and corporations gained rents from Britain. Corporate securitization also gave investors liquidity and equity shares in proceeds from corporate rents.[5]

The use of corporate securitization to structure and restructure sovereign debt began with the founding of the Bank of England in 1694 and climaxed with the South Sea Bubble in 1720. The share of the British national debt pooled by the Bank of England, the East India Company and the South Sea Company rose from zero in 1690 to 80 percent in 1720. Figure 1 presents this share as a time series from 1690 to 1775.[6]

An unexpected consequence of corporate securitization was high levels of creditor coordination, for the three corporations shared the salient features of collective action clauses.[7] British corporations were led by representative committees and could agree to restructure debt by a majority vote of creditors.[8] Corporate securitization simultaneously lowered debtor bargaining costs by putting creditors under a corporate umbrella and raised creditor bargaining power by increasing the share of overall debt held by corporations. Britain repeatedly used these low costs of negotiation to restructure the sovereign debts already held by the corporations.

After the South Sea Bubble of 1720, however, creditor coordination levels

[4] Broz and Grossman (2005) consider the bilateral bargaining over charter renewals between the Bank of England and the government. This paper expands the concept to consider other companies, investors, and other privileges.

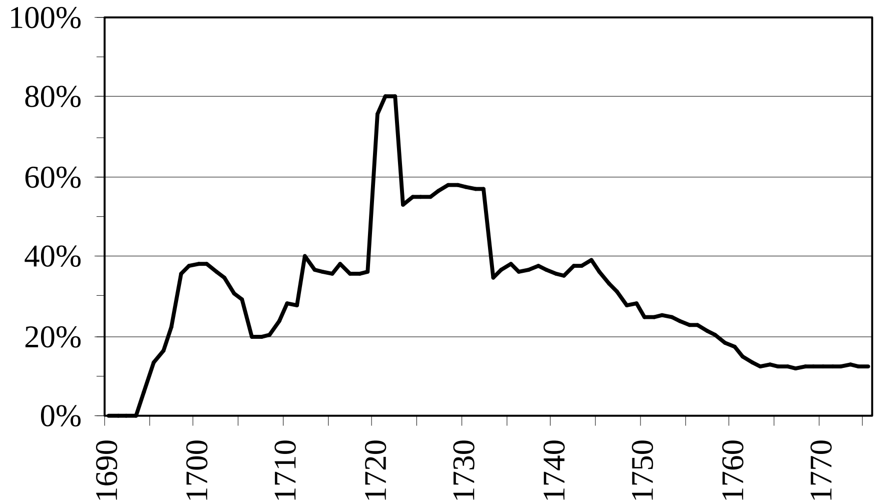
[5] Some recent restructurings have also offered claims with improved liquidity and collective action clauses to secure creditor participation (Eichengreen 2003: 78). In the British story, the government negotiated an agency relationship with a corporation and then the corporation executed the restructuring operation on behalf of the government.

[6] The numerator is derived from BPP 1898 for long-term debt held by the three companies. Short-term debt held by the Bank of England is derived from Bank of England General Ledgers, Dickson (1968), and Clark (2001). The denominator is derived from Mitchell (1962) for total short-term debt and Quinn (2004) for total long-term debt. Obeservations are fiscal years, so fiscal year 1700 runs from October 1699 to September 1700.

[7] See Weinschelbaum and Wynne (2005).

[8] In contrast to *ad hoc* creditor committees, the British corporations were ongoing companies similar to the the bondholders' organizations that proliferated in Europe after the creation of the British Corporation of Foreign Bondholders in 1868 (Esteves 2005). The British corporations were distinct, however, in that they had interests with the government beyond the specific issue of debt restructuring, so negotiations included consideration of corporate privileges sponsored by the government.

Figure 1: Share of National Debt Held by the Bank of England, the East India Company and the South Sea Company



became very high, and the three corporations successfully resisted most restructuring. In response, Britain undermined corporate resistance, and undid much of the corporate securitization.[9] The decline of securitization is seen in Figure 1 as a long decline in the share of national debt held by the three companies, but creditor resistance did not finally collapse until 1750. This post-1720 era reaffirms that re-negotiation proof structures of sovereign debt are difficult to maintain.

To tell the story of the structure of Britain's sovereign debt from a new perspective, this paper proceeds with a summary of the analytical issues that characterize sovereign debt and their relevance to the British experience. The third section clarifies the differences between typical securitization and the securitization of sovereign debt. The next section considers why Britain favored securitization as a sovereign debt restructuring mechanism.

[9] Haldane et al (2005: 327) make the point that creditors and debtors may agree to coordinate creditors in order to reduce negotiating costs but disagree on the desired effectiveness of collective creditor resistance.

The fifth section retells the history of the structure of the British national debt through this paper's conceptual framework. The conclusion remarks on the overall transformation of the structure of the British national debt. Throughout, the paper uses a new data set, already seen in Figure 1, that deconstructs the British national debt from 1688 to 1775 by each type of debt issue.[10]

2 Sovereign Debt

Tirole (2002: 91) categorizes sovereign debt as an extreme type of *common agency* problem. Sovereign immunity undermines the effectiveness of typical commitment devices like borrowing limits and creditor seniority, so sovereigns with poor reputations face credit rationing (Tirole 2002: 66-8). In contrast, sovereigns with better reputations produce contracting externalities because new lenders do not internalize the *debt dilution* they create for pre-existing creditors (Bolton and Oliver 2005; Borensztein *et al* 2005: 15-22)). The result is over-lending.

After the money is lent, *collective action externalities* impede the coordination of creditors for the monitoring of, negotiating with, or threatening of the sovereign debtor (Tirole 2002: 68-9). The difficulty of collective creditor action creates moral hazard for the sovereign because it is hard for creditors to collectively respond to faulty repayment.

To get sovereigns to internalize the effects of debt dilution, investors favor short-term debt, foreign-currency debt, heterogeneity of claims and other devices that make the sovereign's obligations less flexible (Bolton and Olivier 2005: 4). This general point fits the British story. Sussman and Yafeh (2004) argue that it took investors decades to fully trust Britain's fiscal credibility.[11]

[10] The national debt and its components have been constructed from the 1898 British Parliamentary Paper "History of the Earlier Years of the Funded Debt," Grellier (1810), Dickson (1967), Clark (2001) and Quinn (2004). The series is substantially different from the commonly used Mitchell (1962: 404-5) series (See Quinn 2004).

[11] The beginnings and causes of England's road to fiscal credibility are much debated. O'Brien (2005) focuses on taxation during the Interregnum. North and Weingast (1989) focus on the Glorious Revolution. Stasavage (2003) focuses on the ascendancy of the Whig party. Sorting between these perspective is beyond the scope of this paper. The

In the meantime, Britain created a crisis prone debt structure. When Britain rapidly expanded its borrowing during the Nine Years War (1688 to 1697), it made heavy use of short-term debt. When Britain first issued long-term debt in 1693, it was in the form of life annuities that were self-amortizing, so principle was continuously repaid.[12] Also, these early annuities did not have redemption clauses. Britain issued "irredeemable" self-amortizing annuities through 1710 and did not issue redeemable, perpetual annuities until 1715.[13] The two decade delay is noteworthy because Holland, Britain's financial mentor, already had a mature system of perpetual, redeemable bonds in 1688 (Fritschy 2003).

An unintended consequence of structural rigidities, however, is a brittle debt structure that is common for emerging market countries (Borensztein et al 2005: 14-22). Inflexibility increases the chance of full performance *and* the chance of unilateral default by reducing the range of options in between. In response to the recent spate of sovereign debt crises in emerging markets, a lively policy debate currently focuses on how to mitigate the problem of unilateral default by increasing flexibility through the coordination of creditors. For example, collective action clauses enable creditors who hold the same type of debt instrument to negotiate in concert (Taylor 2002). Eichengreen and Mody (2003), however, find that coordinating diverse types of debt is a substantial obstacle for emerging markets, so over-arching sovereign debt restructuring mechanisms are promoted to coordinate creditors over the spectrum of debt issues (Krueger 2002, 2003).[14]

The goal is to lessen the rigidities created by the initial structure of

only assumption herein is that Britain's credibility was improving during this era.

[12] This technology was adopted from Holland. Cities in Holland had been issuing life and term annuities since the Fourteenth Century, and the province of Holland successfully adopted the practice in the mid-Sixteenth Century (Tracy 1985: 13-70).

[13] The corporate annuities tied to the Bank of England's charter and the East India Company's charter also had limited redemption rights, for these annuities fell due as a lump sum when the charters expired. Other annuities not tied to the charters were redeemable.

[14] Implementation of any international sovereign-debt restructuring mechanism appears particularly problematic because creditors fear moral hazard problems and governments fear super-national authorities (Kroszner 2003; Eichengreen and Mody 2004; Sharma 2004).

sovereign debt, for high levels of creditor coordination reduce negotiation costs and holdout problems. The result is that institutions that reduce collective action externalities discourage unilateral default by encouraging negotiated restructuring. Subsequent sections of this paper will explain how Britain used corporate sponsored securitization to this same end.

An easily negotiated restructuring may be desirable for all parties when a country has an unsustainable debt burden, but a sovereign can also use an improved coordination architecture to restructure a *sustainable* debt burden (Eichengreen 2003).[15] Improvement in collective creditor action can create a new moral hazard that encourages sovereigns to restructure when they would otherwise not default. Subsequent sections of this paper will explain how Britain used securitization to restructure both sustainable and unsustainable debt.

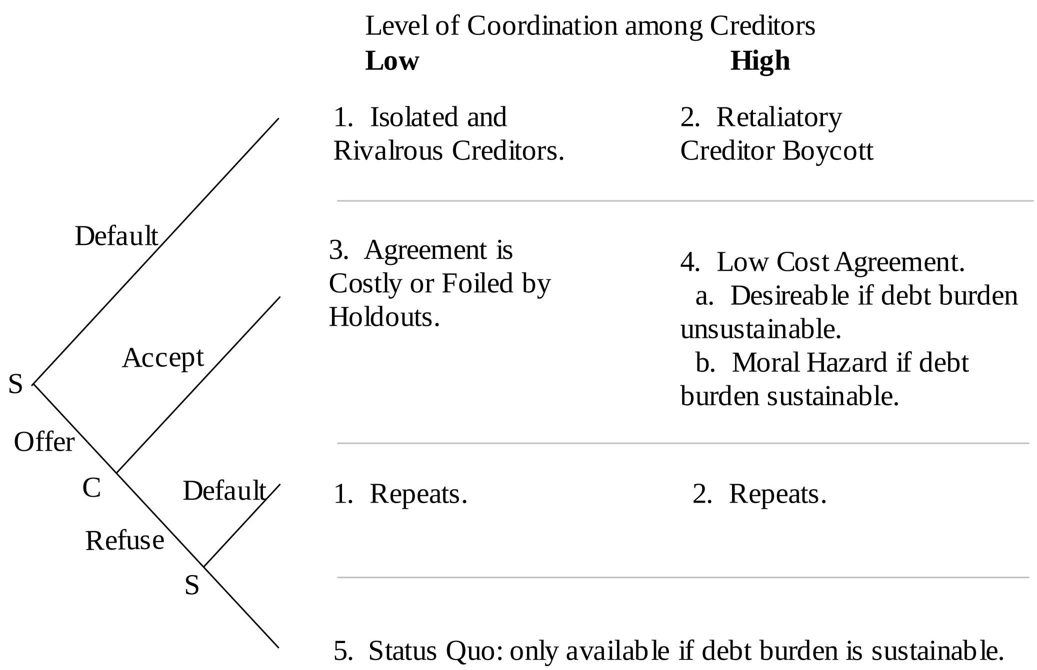
2.1 Levels of Coordination

To relate debt crises and the moral hazard of too much restructuring, Figure 2 draws a decision tree where credibility has allowed a sovereign to borrow large amounts in a risk-prone structure. The sovereign (S) goes first and has three options: impose a unilateral default, offer a voluntary restructuring plan, or accept the status quo (implied rather than drawn as an initial option). If the sovereign chooses to negotiate, then creditors (C) either accept or reject the proposed restructuring. If the creditors refuse, then the sovereign is left with either the status quo or a unilateral default. In this framework, the effect of creditor coordination is highlighted by designating two states of the world: one with low levels of creditor coordination and one with high levels of creditor coordination.

Under low levels of creditor coordination, a sovereign trapped in a brittle debt structure prefers to default. The prospect of a successful negotiated restructuring and the prospect of effective creditor retaliation are both low. In contrast, a sovereign favors negotiated restructuring when coordination

[15] This paper uses the term sustainable in a strong sense: debt is sustainable when a sovereign will choose to not default if creditors refuse to restructure. Unsustainable includes when a sovereing is unable or unwilling to honor claims.

Figure 2: Sovereign Debt Restructuring Outcomes



levels are high. Creditor coordination makes the threat of retaliatory boycotts credible while also reducing the costs of negotiating with large numbers of creditors. Creditor coordination solves the crisis by moving the game's outcome from unilateral default (Outcome 1) to low cost agreement (Outcome 4). If the debt burden is unsustainable, then this change is likely an improvement for all concerned (Outcome 4a). In Section 5.2, this paper will show how Britain used corporate securitization to this effect.

Creditor coordination, however, can also lead to moral hazard, for a sovereign may seek to restructure when the sovereign would not otherwise default (Outcome 4b). This also happened in the British story (Section 5.3). To contain this moral hazard, yet still avoid crises, creditors must resist when the sovereign will subsequently maintain the status quo (Outcome 5), and creditors must agree to restructure when a genuine crisis emerges. The British experience with creditor resistance is examined in Section 5.5 of this paper, so the British story contains examples of the all these fundamental issues involving the structure of sovereign debt.

2.2 Expectations

Expectations of restructuring can potentially undermine the ability of creditors to control moral hazard. Sovereign expectations of restructuring means that a crisis-prone debt structure may not deter sovereign over-borrowing.[16] The sovereign may have an incentive to willingly create an unsustainable debt situation, for creditor resistance losses effectiveness when confronted with a genuine threat of unilateral default.

To counteract sovereign expectations, creditors must credibly threaten to withhold restructuring when a sovereign attempts to abuse restructuring facilities. Today, this is a central challenge for the International Monetary Commission.[17] The goal is, "institutional design that is more renegotiation-friendly without being borrower-friendly (Esteves 2005)."

An expectation of restructuring, however, is conditional on the existence of an enabling technology, and Britain did not apply corporate securitization to the restructuring of short-debt until 1697, and no long-term debt was restructured until 1715. Moreover, the problem becomes moot when the accumulation of sovereign credibility makes the moral hazard of overissue a negligible concern (Eichengreen and Mody 2004). If the adoption of redeemable, perpetual annuities around 1715 is a proxy for the start of Britain's mature stage of credibility, then Britain may have had a period of intense war finance (the War of Spanish Succession, 1702-13) when some

[16] Creditors can also expect restructuring, and that changes the nature of the lending decision. Expectations of restructuring means that creditors can demand higher rates without compromising the sovereign's eventual ability to pay, for the high rates will eventually be restructured. Credit rationing is reduced.

[17] For example, the coordination services of the Paris Club, used by foreign governments, is conditional on the debtor having a credit agreement with the IMF, so the role of assessing the legitamacy of an indebted country's need has been delegated (Brown and Bulman 2006: 13).

expectation of restructuring short-term debt was in the air. In fact, the founding of the South Sea Company in 1711 was such a swap of equity for short-term debt.

While the War of Spanish Succession did see an increase in the amount of short-term borrowing, the big change was the dramatic increase in the use of long-term debt (Carlos *et al* 2005). From 1702 to 1713, the national debt increased from 16.6 to 45.5 million, and long-term debt's share of that total increased from 45 to 82 percent. This shift supports the idea that creditors feared runaway short-term borrowing, but it also agrees with the idea that Britain's credibility was climbing high enough to support more long-term borrowing in a hard-to-renegotiate form. Indeed, a critical use of securitization was converting short-term debts into long-term debts.

3 Securitization

The structure of Britain's early national debt followed the problems generally associated with the sovereign debt of emerging market countries, but *how* were coordination and restructuring achieved? The late Seventeenth Century did not have external institutions like the IMF or the London Club. Instead, Britain invented securitization of sovereign debt. Asset-backed securitization pools illiquid assets, gives their ownership to a collective agent, and sells marketable securities backed by the pooled assets. The common version of this is when a creditor pools receivables into a trust that sells claims on the pool to investors (Gorton and Souleles 2005: 14). In the British case, creditors pooled government debt into corporations that sold stock backed by the pooled debt.

Britain used corporate securitization in a variety of ways. New debt was issued directly to corporations, and debt-for-equity swaps transferred sovereign debt from claims held by the investing public to claims held by the corporations. Finally, sovereign debt already held by the corporations was restructured while not necessarily altering the equity structure.

While securitization of sovereign debt shares many features with securitization commercial debt, the differences between the two derive from the fact that in commercial securitization the common agent is the creditor (one bank with many borrowers) while with sovereign debt one has a common debtor (one country with many creditors).

For example, banks and sovereigns might both instigate securitization to make room for more debt creation. Banks do this by moving debt off-balance sheet so as to no longer be the creditor, yet the nature of the debt does not change. In contrast, a sovereign remains the debtor while the debt is restructured. In turn, the economic nature of the securitization "pipeline" is different. Banks and other financial intermediaries specialize in the production of individual loans to diverse people, so the creation of illiquid assets is inherent to their economic function. In contrast, this paper argues that the illiquid government debt issued by the British government from 1688 to 1714 was a product of limited sovereign credibility. In time, the British issued new government debt that was very marketable, so Britain's sovereign debt securitization was contending with illiquidity that could be, and eventually was, corrected through initial debt creation. Indeed, Britain eventually "desecuritized" much of debt structured in derivative form via corporations.

Another example of how the differing point of common agency matters is incentives. When a bank securitizes retail loans, the asymmetry of information inherent in bank lending creates a lemons problem (DeMarzo 2005: 2-3). Investors fear that a bank may choose not to expend the effort needed to create high quality loans (moral hazard). Also, a bank may choose to retain high quality loans it does create for itself (adverse selection). In contrast, when sovereign debt is securitized, investors fear that the government will choose to offer low quality loans (adverse selection) and, afterwards, it will be more likely to choose to restructure those loans (moral hazard). When securitization also has the effect of increasing creditor coordination, then it contributes to the moral hazard described in Figure 1, Outcome 4b.

For both commercial and sovereign securitization, the common agent's incentive problems cannot be fully contracted away: because of asymmetric information for banks, and because of sovereignty for nations. Instead, solutions are endogenous to the process. DeMarzo and Duffie (1999) show that banks can signal that assets are high quality by retaining the riskiest portion of the pool. That approach, however, does not work to change the incentives of a common debtor. Instead, Britain simultaneously restructured the backing assets into a less onerous form. This was Britain's goal in instigating debt restructuring, and the natural result was to reduce the moral hazard hanging over the new asset-backed securities, for restructuring moved debts from the front to the back of the government's implicit default que.[18]

3.1 Investor's Perspective

Adding restructuring to securitization expands the number of elements that creditors consider when deciding whether to participate in a securitization operation. DeMarzo (2005) points out that creditors in standard securitization schemes already balance the gains of risk diversification (D) and increased liquidity (L) created by pooling against the destruction of asset-specific information (I) that is also caused by pooling.[19] In effect, the net benefit of securitization to a creditor can be described as $D + L - I$.

Simultaneous debt restructuring introduces concessions (C) from creditors, such as changes in rate or maturity. If a new debt issue, then concessions are relative to other sovereign debt opportunities. The concessions, of course, are the government's purpose for proposing a restructuring.

The corporate nature of the British process also brings creditors a share (S) of the corporation's other enterprises.[20] Corporate stock was not a pure derivative of sovereign debt because these corporations had other earning assets like bank loans and overseas shipping. For example, a share of the Bank of England was both an asset-backed security and an equity claim on the banking business. Corporate dividend payments combined these returns.

[18] The assumpiton is that a government will default on or restructure its least burdensome debts last. The que is implicit because the nature of sovereign common agency creates credibility problems for explicit seniority commitments that have remained unsurmounted (Borensztein *et al* 2005: 4).

[19] The importance of diversification and asset-specific information, however, will depend on the heterogeniety of the sovereign debt restructured.

[20] A full analytic exposition would make the share value S a function of the privileges granted by the government to the corporation.

Another consideration for creditors is that restructuring reduces the likelihood that the restructured debt will suffer a unilateral default (U) because that debt is now at the end of the implicit default que. Also, restructuring reduces the overall debt burden, so a positive spillover to all sovereign debt occurs.

Securitization also affects the likelihood of future restructurings. Placing debt into a highly coordinated structure reduces the cost to the sovereign of future restructurings (R), but creditor coordination also increases the bargaining power of the pooled creditors (B). This paper finds that, in the British experience, the level of coordination required to effectively boycott restructuring was greater than the level of coordination needed for the government to secure low cost restructuring agreements. If creditor coordination is viewed as a continuum, then the benefit to Britain from moral hazard was greater than the cost to Britain a boycott threat until coordination levels became very high after 1720.

For investors, the restructuring of sovereign debt supplements the set of standard considerations (diversification, liquidity and information) with two additional sets. One set compares the concessions granted against the benefits of an equity share in the corporations. The other set is the overall change in expected debt performance based on the change in default risk and net change in restructuring risk. The constraint for voluntary creditor participation in sovereign debt securitization becomes

$$(D + L - I) + (S - C) + (B - R - U) > 0. \tag{1}$$

3.2 Corporation's Perspective

British securitization also required the voluntary participation of a corporation with its own set of concerns. Securitization would dilute existing equity claims, so the government had to award corporate privileges (P) to compensate for the expanded ownership.[21] In other words, $P > \Sigma S$ over all

[21] An implication is that the treshold amount of privileges could be reduced if the creditors were already stakeholders. This could occur, for example, when a corporation agreed to make a call on capital. In contrast, a debt-for-equity swap would create the relatively

new equity holders. At the creation of a corporation, for example the Bank of England in 1694 and the South Sea Company in 1711, the right to incorporate was a privilege.[22] Similarly, when charters approached expiration, renewing the charter was also a grant of a privilege. Privileges could also be grants of monopoly power in banking or trade.

The entanglement of debt pooling with corporate rents contrasts sharply with modern securitization corporations. For example, Gorton and Souleles (2005) argue that remoteness is at the heart of why modern sponsors of securitization create entities called Special Purpose Vehicles (SPVs). SPVs only purpose is to hold the pooled assets and issue claims on those assets. "In short, SPVs are essentially robot firms that have no employees, make no substantive economic decisions, have no physical location, and cannot go bankrupt (Gorton and Souleles 2005: 2)" In Gorton and Souleles view, the purpose of these robot firms is to create bankruptcy remoteness, meaning that the pooled assets are not affected by the bankruptcy of the creditor that created them. For investors, this creates value because the assets backing their claim cannot become entangled by any later problems of the common agent pooling the assets.

In the British case, equity claims blended the pooled sovereign debt with other corporate endeavors, the privileges those endeavors relied on, and governance of the corporation. Creditors might prefer remoteness other things held constant, but entanglement was a cost of blending corporate privileges into the securitization process. Also, because securitization included privileges granted by the government to corporations, the domain of the sovereign's common agency problem included the debt owned to the corporation and the privileges enjoyed by the corporations. Put differently, the government's fiscal credibility was an expectation of honoring both debt contracts and grants of privilege.[23]

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high treshold.

[22] For the Bank of England, see Broz and Grossman 2004.

[23] From this perspective, it is important to note that Britain never threatened to prematurely revoke any of the three corporate charters or other privileges.

3.3 Sovereign's Perspective

At the same time, the government had to find the deal attractive, so the sum of concessions by creditors had to exceed the value of privileges granted, or $\Sigma C > P$.[24]

Putting the corporate and sovereign incentive constraints together in a simplistic way suggests that the amount of privilege was bounded.

$$\Sigma C > P > \Sigma S \tag{2}$$

For a representative creditor, this means that the share claim (S) would be less than the concession amount (C). The remaining elements (diversification, liquidity and net change in default/restructuring risk) had to more than compensate for this gap.

Played out over time, this process has further implications. If the accumulated privileges of corporate rents (ΣS) become too valuable, then there may be no viable securitization arrangement involving that corporation. The British government would deal with a situation like this by creating a new corporation called the South Sea Company that was hungry for new privileges. Also, once the securitization process transformed the structure of the British national debt into homogeneous, liquid claims, then the incentives driving securitization would end. Britain reached this stage in 1720. The process of securitization eventually worked itself out of a job.

So long as investors contended with unsustainable or illiquid sovereign debt, and so long as Britain had privileges to offer corporations, the intersection of corporate securitization and sovereign debt restructuring could give all parties an incentive to participate without the government having to threaten default or even redemption.

[24] An expansion of this analysis would distinguish between the value of a privilege to a corporation and the cost to the government to supply the privilege.

4 Why Securitization?

Explaining how securitization of sovereign debt could satisfy creditors, corporations and the sovereign leaves unanswered *why* Britain favored corporate intermediation as a method of structuring sovereign debt. It has already been pointed out that Britain may not have had sufficient credibility to successfully issue homogeneous, liquid long-term debt during the early years of the national debt. In that case, securitization allowed the sovereign to issue debt in a rigid form while the derivative claim, corporate stock, could take a highly liquid form. For example, the annuities created by the charters of the Bank of England (1694 and 1709) and the East India Company (1698 and 1708) could only be redeemed at the end of the charter, and the charters had fixed lengths.

This situation, however, was fading. In 1710, the government hired the Bank of England to take subscriptions for a lottery that would return term annuities to investors.[25] In 1715, the Bank of England was hired to both subscribe and then service the first direct issuance of redeemable, perpetual annuities. By using the Bank of England as a debt manager, sovereign debt that was redeemable and perpetual mimicked corporate stock, shared the same secondary stock market, and enjoyed similar liquidity.[26] Britain would continue to pay the Bank of England to market and manage almost all new long-term debt for the rest of the eighteenth century.[27]

[25] Moving the subscription site from the West End to the City and moving the administration of the subscription from the Exchequer to the Bank of England were part of a near desperate attempt by the Whig government, Lord Treasurer Godolphin in particular, to raise new money in a year of particular fiscal distress (Dickson 1967: 62). The gambit worked, for the first such lottery was fully subscribed on the first day (Grellier 1810: 70). Godolphin's government fell from power anyway, but the subsequent Tory government, who disliked the Whig-dominated Bank of England, continued to contract with the Bank of England for the initial subscription of additional lotteries in 1711 and 1712.

[26] The point is underscored by the fact that British parlance for these government debts became stock. For example, British annuities paying 5 percent were called 5 percent stock.

[27] The government did occasionally return to using the Exchequer to market new debts: a lottery in 1719; annuities in 1720, 1732, 1736, 1739; and a tontine in 1765.

4.1 Coordination

Corporate securitization also *coordinated* creditors. For new debt issues, corporations offered investors initial subscription facilities that were convenient and low cost. Often, corporations included short-term financing by offering a payment schedule. Corporations also orchestrated disparate creditors through debt-for-equity swaps. In the process, restructuring via securitization also created a redeemable, perpetual debt structure before direct issue began in 1715. In 1697 (Bank of England) and 1711 (South Sea Company), creditors swapped short-term debt for stock. The short-term debt was simultaneously restructured into redeemable, long-term debt owed to the corporations.[28]

As with new debt, corporate management of restructuring operations did not require corporate ownership of the debt. In 1717, Britain hired the Bank of England to offer facilities wherein creditors holding redeemable term annuities voluntarily converted them into perpetual annuities.[29] Over the three years 1717 to 1719, the Bank of England administered initial public offerings of £3.2 million in new perpetual annuities, and the sums raised were used to retire outstanding short-term debts.[30] Through the Bank of England, Britain gained corporate agency without corporate ownership.

4.2 Privileges

An advantage for the government of combining privileges with securitization was that granting privileges did not involve cash outlays. While privileges

[28] The Bank of England was very careful to keep seperate the annuities with and without a government right of redemption.

[29] The sum was 8.7 million worth of 32 year, self-amortizing annuities had been issued through lotteries in 1711 and 1712. The annuities had a pricing problem because interest and principal paymentes were not distinguished, and Britain solved the problem by repaying the full, initial principal. For creditors, this was a very attractive buyout, and Britain soon switched to redeemable perpetual annuities. The government's redemption threat was backed by a line of credit from he Bank of Enland and the South Sea Company.

[30] The Bank of England issued stock at 4 percent to retire £1,603,988 in army debentures (1717); £509,127 in tallies (1717); £437,801 to cover various deficiences (1718); and £548,434 (1719) in army debentures. Also, in 1719 the Bank of England issued stock at 5 percent to retire £110,313 in Navy bills.

carried an opportunity cost for the government, their cashless nature was particularly valuable to the government when liquidity was scarce, such as during a war..

After wars, securitization remained attractive to the government because price, measured in privileges, that Britain had to pay to gain concessions decreased. The end of the War of Spanish Succession in 1713 eased Britain's fiscal desperation, and direct issue of redeemable, perpetual debt in 1715 offered an alternative to corporate securitization. During wars, bargaining power favored the companies, unless the state was on the verge of unilateral default, as could be argued for 1697 and 1711. After wars, bargaining power shifted in favor of the government.

Britain was careful to never threaten a unilateral default regarding explicit privileges, such as the premature revocation of a corporate charter, but other aspects of corporate rents were negotiable. Broz and Grossman (2004) stress that charter renewals were something Britain and the Bank of England bargained over, and the same applies to the other corporations. For example, when competing East India Companies sought to merge in 1708, a new corporate loan was required. Another example is when the South Sea Company, in 1718, accepted a rate reduction in exchange for limiting the Britain's redemption rights.

Also, other privileges were not fully contracted through charters. For example, the Bank of England had a monopoly on corporate banking in England and Wales, but it did not have a monopoly on bank notes. Partnerships of 6 or fewer could issue banknotes, and the South Sea Company used a closely-held partnership called the Sword Blade Company to offer notes and other financial services during the South Sea Bubble.

The greater threat to the Bank of England's banknotes, however, was from Britain itself. Short-term government debts, in the form of Exchequer bills, were a potential threat to the Bank of England's monopoly on bank notes, and the Bank of England worked for decades to sequester the threat. Exchequer bills were introduced in 1696 and were similar to bank notes: easily transferable and in low denominations, starting at £5, but the bills were not payable on demand.[31] To promote their circulation, the government hired syndicates to purchase Exchequer bills at par when creditors demanded cash.[32] In 1707, the Bank of England outbid the syndicates to gain control of this encashment service.[33] Over the next 10 years, the Bank of England chose to retain 40 percent of all Exchequer bills despite their paying a low marginal rate of return.[34] The point is that in 1709 and in 1717, the Bank of England accepted rate reductions and relinquished administrative fees to gain the privilege of converting Exchequer bills into long-term debt held by the Bank of England.

4.3 Collective Action

A consequence of corporate ownership of sovereign debt was to increase the level of creditor coordination, and this give Britain an additional reason to retain a securitized debt structure. The three corporations were able to act as *permanent collective action committees* that could negotiate with

[31] The first attempt to issue Exchequer bills in 1696 failed. In 1697, a second attempt to issue Exchequer bills succeeded because the bills were also modified in two ways: interest was offered, the bills could be used to pay taxes (Dickson 1967: 368-73).

[32] The government wanted to retire regular debts with Exchequer bills; however, that strategy created an uncomfortable situation when the government offered its creditors Exchequer bills but creditors demanded cash, as was their contractual right. The government's solution was to hire a private syndicate to cash such Exchequer bills when repaid creditors demanded. The mechanism encouraged creditor acceptance of Exchequer bills and introduced delegation into the process of short-term government debt. Dickson concludes that Exchequer bills, "changed hands as freely as bank-notes (1967: 372)."

[33] When the government proposed a large new issue Exchequer bills in 1707, the first large issue since the inception of Exchequer bills, the Bank of England outbid the syndicates to gain control. Although the Bank of England charged a higher fee than its predecessor, the Bank of England was willing to accept its payment from the government in the form of more Exchequer bills, and the Bank of England also agreed to accept Exchequer bills from any holder on demand (Dickson 1967: 373). The Bank of England got the government to stop creating £5 and £10 (low denomination) bills that most rivaled Bank of England notes.

[34] For the 1707 Exchequer bills, the Bank of England received no marginal return for holding them. From 1709 to 1717, the marginal rate was 2 pence per day (3.04 percent per annum), and then it was reduced to 1 pence per day (Dickson 1967: 378). Forty percent is for the years 1707 to 1717 and is derived from total Exchequer bills from Dickson (1967): 377, 383, and 526-7 with gaps filled from the holdings of Exchequer bills in Bank of England annual balances found in the Bank of England General Ledgers held by the Archives of the Bank of England, London.

the government and circumvent holdouts.[35] Corporate ownership reduced negotiation costs and increased creditor coordination, so it was easier for the government to restructure debt owned by corporations. The result was that Britain used this high level of coordination to restructure the debts held by the corporations. In this way, corporate securitization had an advantage to the government relative to a disparate ownership structure.

Investors in the Bank of England were represented by a governor, a deputy-governor, and a 24 member Court of Directors, and these officers were elected by the General Court of Proprietors (Scott 1951: 204; Hennessy 1995: 185).[36] Although elected annually, the leadership of the Bank of England became very stable because the tradition developed that governors would serve two one-year terms and then be succeeded by their deputy governor (Clapham 1958: 108). Also, the Court of Directors met weekly and appointed sub-committees as necessary (Hennessy 1995: 188). Because the Bank of England had continuous business with the Treasury, the directors maintained a standing committee called "The Committee to attend the Lord Treasurer (Clapham 1958: 109)," so the channels of negotiation between the government and the Bank of England were well established and frequently used. The Bank of England also bore the cost of maintaining this leadership structure by paying the officers' salaries.

When the Court of Directors negotiated a debt restructuring agreement with the government's Treasury department, the General Court of Proprietors could authorize acceptance with a majority vote. Dissenters, if a minority of the General Court, had no ability to hold out. Collective action by the General Court was streamlined further by the requirement that a person had to own at least £500 in par value stock to gain a vote. As a result of this rule, 34.9 percent of subscribers at the Bank of England's inception did not have a vote in the General Court (Dickson 1967: 255). In 1725, 26.6

[35] The government had borrowed from companies in exchange for privileges during the Civil War (1642-49), but those loans were short-term, and some were never repaid (Coates 2004: 70-74)

[36] To be eligible for office, the governor had to own at least £4,000 in stock, the deputy-governor had to own at least £3,000, and directors had to own at least £2,000 (Scott 1951: 204).

percent of Bank of England stockholders did not clear the voting threshold, and, in 1753, 21.5 percent still held less that £500.[37]

In 1698, the New East India Company made a long-term loan to the government of £2 million in exchange for Parliament authorizing its incorporation. Like the Bank of England, the East India Company was a collective action committee led by a court of 24 elected directors and ultimate authority was vested in a majority of the voting stockholders who owned at least £500 of stock (Scott 1968a: 180). Also, East India Company stock was easily traded on the same secondary market as Bank of England stock.

When the South Sea Company was created in 1711, it had a governor, deputy governor and a court of 30 directors (Scott 1951: 295). Despite being composed of mostly small investors, the minimum voting level of ownership was £1,000 or twice that of the Bank of England or the East India Company (Dickson 1967: 273). As a result, Carlos, Neal and Wandschneider (2005: 22, 26) find that 80 percent of South Sea Company stockholders had no vote in the General Court in 1723. Power was even more concentrated than that because increased amounts of stock moved a person up to 2, 3 or even 4 votes. As a collective action committee, the South Sea Company was particularly streamlined in that 10 percent of creditors could commit the entire corporation to a restructuring.

4.4 Competition

The rivalry between the Bank of England and the South Sea Company further increased the attractiveness of securitization. The South Sea Company was founded in 1711 with monopoly rights over British trade with the Spanish Americas, but that business never amounted to much.[38] Rather, the South Sea Company's business became the securitization of government debt. To expand, the South Sea Company had to overcome its rival, the Bank of England.

[37] The 1725 share is from Carlos, Neal and Wandschneider (2005: 21), and the 1753 share is from Dickson (1968: 275). Also, Dickson (1968: 255, 275) finds that the non-voting share of owners was 42.3 percent in 1697 and 24 percent in 1724.

[38] In 1711, Britain was at war with Spain, and, in 1718, Britain again entered war with Spain, so British trade with Spanish America failed to blossom.

In early 1720, the South Sea Company proposed that all sovereign debt be securitized through the South Sea Company. The scale of the scheme was inspired by John Law's new system in France, and the Bank of England had reasons to worry. The South Sea Company was proposing that the Bank of England be stripped of most of its assets in violation of the Bank of England's charter. While the idea to forcibly convert corporate debt was soon dropped because of a lack of government interest, the South Sea Company's proposal still threatened the Bank of England in two ways. If successful, then the South Sea Company would become vastly larger than the Bank of England and potentially threaten the Bank of England's emerging role as administrator of sovereign debt. Also, the South Sea Company offered to circulate Exchequer bills for no fee (Dickson 1967: 521). This clause was a direct challenge to the Bank of England's containment of Exchequer bills.

The proposal set off a bidding war with the Bank of England over which company would *pay the government* the most for the privilege of conducting the big debt-for-equity swap. The South Sea Company won, and the subsequent conversion, later known as the South Sea Bubble, moved the share of the British national debt held by the South Sea Company from 20.3 percent in 1719 to 61.5 percent in 1720. The scheme also succeeded in breaking the Bank of England's control over Exchequer bills (Dickson 1967: 377).

The South Sea Company was unable to consolidate this victory because unwinding the speculative bubble of 1720, a bubble created by the company, left the company's leadership in disgrace. The Bank of England quickly regained control of Exchequer bills. After 1720, the Bank of England entered a new contract every July to absorb the entire issue of new Exchequer bills, held them to maturity, and ceased any serious attempt to circulate them (Dickson 1967: 382-3).

The point is that competition between corporations increased the price the state could charge for privileges, so the state could extract a greater share of the rents flowing from privileges. As a result, Britain was paid by a corporation for the privilege of coordinating and executing a securitization operation. More, the debt-for-equity swap got creditors to voluntarily convert disparate, irredeemable annuities into a homogenous, redeemable debt with corporate governance analogous to a permanent collective action committee. Britain might have been able to pull off the conversion using the direct issue of liquid, redeemable debt, but Britain would have had to pay creditors rather than be paid by a corporation.

4.5 Cooperation

An unintended consequence of increasing creditor coordination was to increase the effectiveness of creditor boycotts. Gorton and Souleles (2005) argue that today banks make a collusive, implicit agreement with investors to bail out the pooled assets. The key assumption is a threat of an investment boycott, "if the sponsoring firm deviates from the implicit contract (Gorton and Souleles 2005: 31)." Such threats could also work against a common debtor, but the credibility of such a threat depends on the level of creditor coordination.

In the early British case, such a threat by investors puts the cart before the horse, for Britain used securitization to create creditor coordination.[39] For example, scholars have suggested that the Bank of England coordinated creditors into a credible boycott threat, but the Bank of England was never a dominant pool of sovereign debt.[40] The Bank of England did become the dominant administrator of sovereign debt, but that ascension occurred from 1740 to 1760: well after the securitization process was finished and substantially undone.[41] Even then, the Bank of England's reliance of privileges compromised its ability to resist the government's desires.

Once the securitization process crested in 1720, however, the resulting extreme level of creditor concentration became a new problem, at least from the government's perspective. Creditors were now so coordinated that resisting restructuring was made far easier. Also, a consequence of the bubble

[39] One might argue that investors could foresee that successful securitization would create the needed creditor coordination, but this paper finds that the level of creditor coordination needed to generate moral hazard is well below the level of coordination eventually needed to discourage moral hazard through a credible boycott threat.

[40] See Weingast 1997: 230; Broz 1998: 232; Wells and Wills 2000: 422; and Stasavage 2002: 157.

[41] See Figure 1 above and Figure 3 below.

in 1720 was that the South Sea Company abandoned efforts to supplant the Bank of England role as financial factotum for the state. To be clear, the South Sea Company did manage a majority of the existing national debt, but the Bank of England was used to issue and administer almost all new debt.

After 1720, Britain switched to a program of de-securitization, but it took Britain 30 years to overcome the corporate coordination created in 1720. The combined positions of the Bank of England, the South Sea Company and the East India Company were sufficient to resist government efforts to renege on the implicit agreement of not coercing a sovereign debt restructuring. The coordination supplied by the corporations under securitization moved the government away from a vulnerability to unilateral default (outcome 1 in Figure 2) to an equilibrium state of effective creditor pressure (outcome 5 in Figure 2).

5 History

The British experience also follows the *sequence* of developments implied by the theoretical problems. First, an improved reputation permits a sovereign to borrow relatively large sums, but fear of moral hazard leads to a brittle debt structure. When a crisis develops, the country seeks ways to coordinate creditors and restructure unsustainable debts. If successful, and Britain was, then a new moral hazard emerges as the sovereign attempts to restructure sustainable debt.

This sequence matches the development of Britain's national debt. Figure 3 summarizes the conceptual steps and the corresponding period of British policy.

Source: See text.

1. (1689-1696). Improved sovereign credibility following the Glorious Revolution of 1688 leads to expansion of sovereign borrowing with an expansion of short-term debt and the introduction of "irredeemable" long-term debt. The variety of debt issues created heterogeneity prob-

Figure 3: Sequence of Sovereign Debt Development

Conceptual Step	British Experience
1. Heavy borrowing in hard to restructure forms.	1689-1696: The Nine Years War.
2. Securitization as a sovereign debt structure.	1694: Bank of England created.
3. Securitization as a restructuring mechanism.	1697-1711: Corporate restructuring of short-term, unsustainable debts.
4. Heavy borrowing in hard to restructure forms.	1702-1713: The War of Spanish Succession.
5. Improving sovereign credibility.	1711-15: Move to issuing redeemable, perpetual debt.
6. Moral hazard of restructuring sustainable debt.	1715-1720: Securitization of long-term debts and restructuring debts already held by corporations.
7. Creditors coordinate to discourage restructurings.	1721-1749: Limited restructuring, but securitization largely undone.
8. Return of moral hazard.	1750-1752: Restructuring lead by the Bank of England breaks creditor resistance.
9. Post-restructuring.	After 1752: Britain refinances instead of restructures.

lems.

2. (1694). The Bank of England was created as the combination of a corporate bank and vehicle for pooling claims on sovereign debt. This is repeated with the East India Company in 1698.

3. (1697-1711). Britain introduces corporate securitization as a restructuring mechanism for unsustainable short-term debt. Britain moves from Outcome 1 to Outcome 4a in Figure 2.

4. (1702-1713). The War of Spanish Succession sees a rapid increase in the amount of irredeemable long-term debt. Beginning in 1711, new long-term debt is made redeemable. Beginning in 1715, new debt is redeemable and perpetual.

5. (1715-1720). Britain used corporate securitization to restructure debt

was burdensome but sustainable. Debts held by individuals was restructured through debt-for-equity swaps. Debts held by the corporations were restructured through agreements with corporate management. The process also increased creditor coordination. Britain was in outcome 4b in Figure 2.

6. (1721-49). After the South Sea Bubble of 1720 (the peak in Figure 1), creditor coordination was at a very high level, and restructuring was largely blocked. The situation changed to outcome 5 on Figure 2. This outcome persisted for three decades even though much of the securitization was undone.

7. (1750-1752). In 1750, the government was able to use the Bank of England to break the creditor coalition and successfully negotiate the restructuring of sustainable debt (return to Outcome 4b in Figure 2).

8. (1753-1775). Redemption replaces restructuring as the primary tool of debt management.

Over the whole era (1689-1752), Britain managed to borrow heavily, improve how it borrows, and repeatedly negotiate the restructuring of its debts. Britain never resorted to a unilateral default, and the final structure of the debt achieves a modern mixture of credibility, liquidity, homogeneity, and low borrowing rates. The rest of this section details this evolution through the organizing principals

5.1 An Emerging Market with a Debt Problem

Seventeenth century Britain had a sovereign debt problem similar to current emerging market regimes: a lack of credibility.[42] The lack of an effective commitment mechanism meant that a monarch's debt was short-term and paid a risk premium. Governments unilaterally defaulted in 1653 and 1672

[42] For example, "Emerging market countries' difficulties in issuing long-term local-currency bonds on the domestic market seem to result from deeper problems, such as a lack of monetary and fiscal credibility, and related worries about the possibility of inflation or outright default (Borensztein *et al* 2005: 3)"

(Coates 2004: 69, Horsefield 1982). The institutional changes following the Glorious Revolution of 1688 increased the fiscal credibility of the British government, but when, how, and by how much remains in contention.[43] The credibility was quickly put to the test as Britain borrowed heavily after joining the Nine Years War (1688-1697) in 1689.

The Nine Years War was expensive and traditional short-term borrowing was greatly strained (Jones 1988). The first years of the Nine Years War produced a national debt composed of short-term debt totaling £5.9 million that was 155 percent of government income.[44] To ease the situation, the government took advantage of its new credibility and experimented with long-term debt by borrowing £881,493 on life annuities in 1693 (British Parliamentary Papers 1898: 5).[45] Long-term debt had the advantage of greatly delaying the repayment of principal, so more could be borrowed in the present and rollover crises averted. In 1693, long-term debt, called funded debt, became 14 percent of the national debt.

The next year, the government offered more single life annuities, and expanded the types offered to include annuities lasting two or even three lives.[46] Life annuities created over one thousand different debts based on individual lives.[47] Pricing each annuity was difficult because their idiosyncratic nature discouraged development of a secondary market (Dickson 1967: 457-64).[48] That same year, 1694, the government also tried a lottery that raised £1 million that paid out annuities with a fixed term of 16 years (Ewen 1932: 128; Murphy 2005: 231). While not as idiosyncratic as the life annuities, term annuities shared a critical aspect with life annuities, for they

[43] See Brewer (1988), North and Weingast (1989), Wells and Wills (2000), Quinn (2001), Sussman and Yafeh (2004), Stasavage (2005), and Klerman and Mahoney (2005).

[44] Derived for fiscal year 1692 using British Parliamentary Papers 1868-9: 7-8.

[45] The idea of life annuities was based on Dutch practices, which is not surprising as the new king, William III (1688-1702), was the Dutch noble William of Orange. A more innovative tontine was also offered, but it was not well received by lenders.

[46] Those sums were £226,353:18:9 in single life; £170,917:2:3 in two lives; £21,235:4 in three lives (British Parliamentary Papers 1898: 5).

[47] The total number of individual annuities is not known, but Dickson (1967: 254) finds that 79 percent of the total amount lent was comprised of 1,257 individual annuities.

[48] The situation was improved by the development of the Million Bank, a unchartered company that securitized these early annuities into company stock (Scott 1951: 275-87).

had no redemption clause. To retire these annuities early, the government had to negotiate with each creditor and accede to their terms. The government created long-term debt that was very difficult to restructure because negotiation costs were high and no mechanism existed to compel holdouts.

In contrast, 1694 also saw the government use a securitized structure to borrow £1.2 million from the newly founded Bank of England. Unlike the life and term annuities, the Bank of England debt was one sum owed to one creditor and would become redeemable in 1705. The scheme had investors purchase stock through an initial public offering, and the Bank of England then lent the funds to the government.[49] The loan was the price mandated by Parliament for the right to incorporate (Broz and Grossman 2004). Once formed, stockholders received dividends that included their share of returns on the initial government loan plus the returns the Bank of England earned as a bank. As a bank, the Bank of England issued banknotes and purchased large quantities of short-term government debt. By March 1696, the Bank of England held 16 percent of the national debt in the form of £1.2 million in long-term debt and £1,562,000 in short-term debt.[50]

In summary, late Seventeenth Century England was an emerging market sovereign that created some credibility with the Glorious Revolution of 1688. The subsequent Nine Years War (1688-97) produced substantial new borrowing, but the debt created took three forms (short-term debt, life and term annuities and corporate debt) that the government would subsequently struggle to restructure. The ultimate form most British government debt would eventually take was as the perpetual annuity, but that debt technology was not issued until 1715. Before then, yet another war, the War of Spanish Succession (1702-1713), would almost tripled the old style national debt to £48.8 million, and leave the sovereign in a burdensome financial situation.

[49] The Dutch had pioneered corporate finance in the early 1600s, but they did not mix corporations and sovereign debt (Gelderblom and Jonker 2004).

[50] The short-term debt holdings for the Bank of England are from the Bank of England *General Ledger 1*, folios 197-8. The national debt number is a combination of Quinn (2004) for the long-term debt and Mitchell (1962) for the short-term debt.

5.2 Restructuring Short-Term Debt

At the end of 1696, 78 percent of the national debt was short-term, and much of that was in arrears, for the amount of short-term debt stood at 275 percent of annual government income (British Parliamentary Papers 1868-9: 14). Short-term debts sold at discounts ranging from 40 to 60 percent.[51] Britain was an emerging-market sovereign that, despite increased taxation and some long-term borrowing, was caught in a typical rollover crisis. Liquidity and solvency fears discouraged creditors from rolling over their claims while increasing rates undermined the sovereign's creditworthiness and reinforce the panic (Calvo 1988; Cole and Kehoe 2000; Borensztein et al 2005: 14).

The British government needed debt restructuring in early 1697, yet the government did not have a debt restructuring mechanism. Convincing creditors to convert would require offering something attractive, yet the government had no superior claims to offer. An obvious solution was to issue more long-term debt, but an April 1697 attempt to issue £1.4 million in annuities was a "complete failure (Dickson 1967: 57)." In contrast, creditors did like claims in the form of Bank of England stock, for it was easy to transfer via ledger entry at the Bank of England, easy to price because all stock was identical, and easy to trade on a secondary market with brokers and dealers (Neal 1990; Carlos, Neal and Wandschneider 2005). Also, stock shared in the profits the Bank of England earned as a privileged bank.

The government, however, did not own any Bank of England stock, but the government could allow the Bank of England create more. To entice the Bank of England, the government offered the Bank of England privileges. In 1697, Parliament extended the Bank of England's charter to 1710 and pledged to not charter any other bank. In exchange, the corporation conducting a debt-for-equity swap that would restructure short-term debt (Broz and Grossman 2004).[52] The privileges were a cash-free way to compensate

[51] Discount rate derived from the Pawn Account of Francis Child in the archives of the Royal Bank of Scotland, London. Scott (1951: 209) reports a 40 percent discount.

[52] Also, forgery of Bank of England notes became a capital offense, and the returns on the short-term debts the Bank of England did absorb were increased from 6 to 8 percent.

the Bank of England's proprietors who did not want to dilute the value of their existing shares by offering new stock in exchange for short-term debts of doubtful prospects.

In the operation, the Bank of England engrafted £784,449 in short-term debts from the public and converted £200,233 of its own short-term debts into perpetual debts whose principal the government could repay at its discretion.[53] The swap converted 7.5 percent of outstanding short-term debt into long-term debt, and, along with other measures, increased confidence in the government's fiscal situation. From the time of making the deal in early 1697 to the conducting the debt-for-equity swap in June 1697, the discount on short-term debt fell from around 40 to 50 percent down to 30 percent.[54] In the second half of 1697, the discount on short-term government debt fell to 17 percent, and the discount merged with that of private rates by 1700 (Quinn 2001: 604).

The government could have created government debt with the liquidity aspects of stock, but a period of crisis was not a propitious moment to restructure the process of government debt management. This paper has already made clear that the government might have lacked the credibility to successfully issue such debt. Also, changing how the government borrowed would have required transforming the Exchequer, for, as the government's cashier for hundreds of years, the Exchequer operated under Medieval procedures antithetical to the efficiencies creditors desired. In contrast, the Bank of England stock already existed as did the mechanism to issue more of it.

The next year, the government used the chartering of the New East India Company to raise £2 million in order to retire short-term debt, and the government continued to sell privileges to gain corporate assistance when the War of Spanish Succession (1702-1713) again placed great demands on government finance. In 1708, in exchange for allowing the extension of the United East India Company's charter to 1728, Parliament required a long-

[53] Sums derived from the Bank of England *General Ledger 1* (ADM 7/1), folios 362-79, 387-97, 414-5, 421-38. The government did not begin paying-off the engrafted debts in any substantial way until 1702. Repayment was completed in 1707.

[54] Discount rates derived from the lending accounts of Sir Francis Child.

term loan on £1.2 million from the combined company (Scott 1968: 191).[55] The next year, the government negotiated the extension of the Bank of England's charter that was due to expire in 1710. In return for extending the charter to 1732, the Bank of England lent £400,000 at no interest.[56] In addition, the Bank of England agreed to restructure £1,775,000 of short-term debt into long-term debt. In Figure 1, the share of national debt held by the companies rebounds some, but now both companies have the concessions they desire from the government, so "the two great companies could not be induced to add to the loans they had already raised (Scott 1951: 293)."[57]

To acquire a new corporate agent, the government authorized the creation of a new corporation called the South Sea Company. The new company was a policy shift that followed the Tory party's victory in the election of 1710 (Stasavage 2005: 8-9). The Bank of England was closely associated with the Whig party, and the Whigs had stymied the development of any rival to the Bank of England. In contrast, the Tory government was keen to create an alternative corporate supplier of debt restructuring (Scott 1951: 296).

The result was that the South Sea Company was founded through a debt-for-equity swap in 1711. The mechanism was similar to what the Bank of England did in 1697, but now the scale was much larger. A variety of short-term debts, and their arrears, totaling £9.1 million were voluntarily converted into long-term South Sea Company Stock paying 6 percent. Although the South Sea Company's charter included a monopoly on trade with the South Atlantic, the prospects for profitable trade were remote, so the attractiveness of the stock to creditors was increased liquidity (Scott 1951: 297-8). As a result, the South Sea Company came to hold more government

[55] The Old and New East India Companies had begun uniting in 1702, and they completely merged in 1709.

[56] In effect, the long-term debt created by the Bank of England's charter went from £1.2 million at 8 percent to £1.6 million at 6 percent.

[57] As a consequence, the government returns to selling £2.3 million worth of irredeemable term annuities in 1710 at an estimated effective yield of 8.3 percent (Homer and Sylla 2005: 155).

debt then the Bank of England and the East India Company combined. The share of national debt held by the three companies (Figure 1) climbed to 40 percent.

During the Nine Years War (1688-97) and the War of Spanish Succession (1702-13), the government learned to borrow through corporations that pooled creditors into a collective: the Bank of England in 1694 and 1709; and the East India Company in 1698 and 1708. Also, the government learned to use corporations to restructure short-term debt into long-term debt: the Bank of England in 1697 and 1709, and the South Sea Company in 1711.[58] The mechanism was to offer individual creditors a collective debt structure that they found more attractive. To gain these services, the government had to offer the corporations something they wanted: new charters, charter extensions, or monopoly privileges. As a consequence, the government avoided unilateral default and increased the level of creditor coordination, for, by 1714, one-third of the national debt was held by the three corporations.

5.3 Moral Hazard

Eichengreen and Mody (2004) point out that creditor coordination can create a moral hazard problem in that a government may seek to restructure sustainable debt if the costs of negotiation are low. By 1715, the use of corporations as mechanisms for restructuring short-term debt had caused over one half of the redeemable long-term debt to be owned by the South Sea Company and the Bank of England.[59] Moreover, the moment was opportune for moral hazard because the government discovered in 1715 that it could borrow £1 million in new perpetual annuities paying 5 percent (Dickson 1968: 81-2). The situation can be viewed as exhibiting moral hazard because there was no expectation that the government would default if creditors refused to restructure.

[58] The South Sea Company also agreed to restructure £822,032 in arrears into long-term redeemable debt in 1715.

[59] Of the redeemable debt at 6 percent, £9,534,358 was held by the public, £10 million was held by the South Sea Company, and £1,775,028 was held by the Bank of England.

In 1715, the government began negotiations with the Bank of England and the South Sea Company, for the government could not refinance the entire £21.3 million in redeemable debt. The market was incapable of supplying so large a sum. Instead, the government desired that creditors agree to restructure the sum instead (outcome 4b in Figure 2). Two years later, each company did agreed to reduce rates from 6 to 5 percent on the redeemable long-term debt they held. To secure the concessions, the government granted privileges.

In addition to restructuring the £1.775 million in 6 percent long-term debt the Bank of England already owned, the government and the Bank of England used the moment to negotiate an additional restructuring of £2 million in short-term debt paying 6 percent that the Bank of England held into long-term debt of the same principle paying 5 percent. By 1717, short-term debt was 136 percent of annual government income, so the conversion again relieved pressure on the government to retire principal (Dickson 1968: 377).[60] For the Bank of England, the conversion was acceptable because the Bank of England did not want these debts in general circulation.[61] The short-term debts in question were easily transferable, issued in low denominations, and were acceptable at par for payment of taxes. Called Exchequer bills, they were not currency, for the bills accrued interest and were not payable on demand, but the bills were potential competitors to the Bank of England's banknotes (Dickson 1967: 368-73). As a result, the Bank of England contrived to limit the circulation of Exchequer bills throughout this era and was ready to destroy them via debt restructuring.[62]

For the South Sea Company, the £10 million the company held at 6 percent was beyond the government's ability to refinance in 1717, however, the South Sea Company did not want to become the on-going target of redemption. Unlike the Bank of England and the East India Company, the

[60] The ratio is for September 29, 1716, and uses £7.6 million from Mitchell and £5,582,050 from BPP 1868-9: 54.

[61] Also, the threat of redemption was credible because the £1.775 million was not much more than the government had recently proven it could borrow at 5 percent.

[62] The £1,775,000 in short-term debt converted in 1709 was also Exchequer bills held by the Bank of England.

South Sea Company had no debt that was sheltered from redemption by its charter, so the South Sea Company accepted the rate reduction in exchange for security. The South Sea Company principal became irredeemable until 1723 and thereafter not more than £1 million per quarter could be redeemed (Grellier 1971: 102).

As part of using the Bank of England and the South Sea Company as instruments of restructuring, the government used the two companies to threaten unaffiliated creditors holding five different issues. As part of the deals, the government also got the two companies to pledge a £4.5 million line of credit that the government could use to buy out individual creditors who did not agree to restructure their 6 percent debt to 5 percent.[63] With this threat, the restructuring was wildly successful as all but six individuals agreed to convert, and the lines of credit were never used.

Eichengreen and Mody (2004) find that modern emerging markets whose debts carry collective action clauses may face higher borrowing rates because of the moral hazard created by easier restructuring. British restructuring, however, did not drive up rates on new loans as concern over moral hazard might suggest. Instead, the reduction in interest overhang improved fiscal credibility and, by the end of 1717, the government was selling £2.1 million in new long-term debt at 4 percent. The government's improved fiscal position worked to reduce default risk, for the restructuring reduced annual interest payments by 13 percent (Dickson 1968: 87).

5.4 The South Sea Bubble

Unlike short-term debt and the long-term debt restructured in 1717, the annuities issued before 1710 had no redemption option. This meant that each such annuity was a stream of payments that could only be ended early if each creditor agreed. In the parlance of the day, the annuities were 'irredeemable', and there were a lot of them. By 1718, 33 percent the long-term debt (30 percent of the national debt) were irredeemables that took the form

[63] The division was £2.5 million from the Bank of England and £2 million from the South Sea Company (Grellier 1971: 101-2).

of 8 different issues of term annuities and myriad life annuities. The problem for the government was that the irredeemable annuities could not be profitably refinanced because lower borrowing rates were offset by increased annuity prices.

The challenge was to find a way to get creditors to restructure voluntarily without Britain buying them out, and the solution, again, was for a company to offer securitization via a debt-for-equity swap. Unlike 1697 and 1711 when short-term debts had circulated at discounts, the irredeemable annuities were already at high prices and ready to go higher. For example, the restructuring of debts in 1717 reduced yields on 99 year term annuities by 125 basis points and raised their price by 25 percent (Quinn 2004).[64]

To gain voluntary conversion, the company stock offered for the swaps had to appear remarkably attractive. Because creditors were giving up there irredeemable status, they had to expect compensation on another dimension, and improved liquidity created by securitization was what the companies had an advantage in offering. Again, by converting annuities into stock, the debt became homogenous, easily transferable and frequently traded on a deep secondary market (Carlos, Neal and Wandschneider 2005). In 1719, the lure of liquidity was tested when the government contracted with the South Sea Company to offer a debt-for-equity swap on a relatively minor class of irredeemables.[65] The situation was indeed a test because the government obliged the South Sea Company to offer a swap price below the annuities' market price.[66] The restructuring attracted two-thirds of the debt in question, so clearly demand existed for conversion of irredeemables into stock.

[64] At this time, 99 year annuities accounted for about 20 percent of all long-term debt. Other term annuities (96 year, 32 year, and 1710 Lottery) show similar patters (Quinn 2004).

[65] The debts were 32 year annuities created by lottery in 1710 that paid £135,000 per year and would expire in September 1742.

[66] The conversion price was 11.5 years purchase in par stock, so an annuity of £100 per annum bought £1,150 in par South Sea Stock. In September 1716, the annuity's price was 14 years purchase, and in early summer 1719, South Sea Stock sold at 115 per £100 par stock, so the market value was around £1,200 in par stock. Also, this is a low estimate because, by September 1717, after the conversion, the market price had risen to 14 5/8 years purchase, so the price in early summer was likely higher.

The success of the 1719 debt-for-equity swap convinced the government to attempt a gigantic swap of all long-term debt. After an initial proposal by the South Sea Company in early 1720, Parliament opened the process, and the Bank of England counter-offered. The directors of both companies revised their offers yet again, and both of the General Courts approved the proposals tendered by their respective directors (Dickson 1968: 99-100). The bidding ended with the South Sea Company pledging to pay the government £4.16 million plus a sum dependent on the amount of debt swapped.[67] Also, the South Sea Company agreed to lower the rate on all its long-term debt, including the £10 million from before 1720, from 5 percent to 4 percent in 1727. The competition between the two companies gave the government a mechanism to restructure the debts and be paid handsomely for allowing their agent, the South Sea Company, the privilege of performing the operation.

How could the South Sea Company afford the offer? If the swap was conducted as the earlier ones had (1697, 1711, and 1719), then it could not, for no new debt principal would be created and rates would actually be reduced in 1727. This swap, however, was different because the South Sea Company issued additional new stock that it sold for cash. Moreover, the cash could be paid in installments, and the South Sea Company provided generous financing to cover the early cash requirements. The installments and financing created a speculative bubble whereby the South Sea Company could sell derivative claims on new stock for ever greater commitments of money. At the height of the bubble, the South Sea Company was owed £75 million in subscribed cash: a sum likely more than Britain's gross domestic product.[68] When a liquidity crunch made clear that the subscription debts could not be collected, the bubble burst. Parliament voided the unfilled subscription pledges, and the South Sea Company fell into discredit.

In the process, however, 80 percent of irredeemables were voluntarily

[67] The South Sea Company would pay $4\frac{1}{2}$ years purchase of all irredeemables swapped plus 1 years purchase on long irredeemables (96 year and 99 year annuities) not swapped.

[68] British GDP estimates in this era are few and imprecise, but an estimate for 1759 is £74 million (Officer 2005).

converted into stock. The increased conversion rate over 1719 resulted from generous expectations by creditors of capital gains. While the rationality of the bubble is still debated, it did promote creditors to swap.[69] After the mania of 1720 settled, 65 percent of the national debt was in the hands of the South Sea Company, and the other two companies accounted for 15 percent (the 80 percent spike in Figure 1). In the five years following 1715, the government used the companies to restructure the national debt from high rates, diverse issues, and bothersome rigidities to corporate issues, lower rates, and redemptive capabilities. Moreover, the restructuring was voluntary and involved debt the government was willing and able to honor.

5.5 Breaking the Creditor Coalition

The South Sea Bubble solved some structural problems in the national debt, but it created a Goliath. Moreover, the discredited South Sea Company had no ambitions to extend itself into new businesses, so the government had little in the way of additional dimensions over which to negotiate future debt restructuring. The new situation lead to a new strategy of national debt management: reduce the power of the South Sea Company. On the incremental side, new borrowing would occur outside the South Sea Company and debt redemption would focus on the South Sea Company. On the dramatic side, South Sea Company debt would be restructured in 1723, 1733 and 1750. At mid-century, the South Sea Company's ability to coordinate collective creditor resistance would be broken, and the tool the government used to finally break the South Sea Company was the Bank of England.

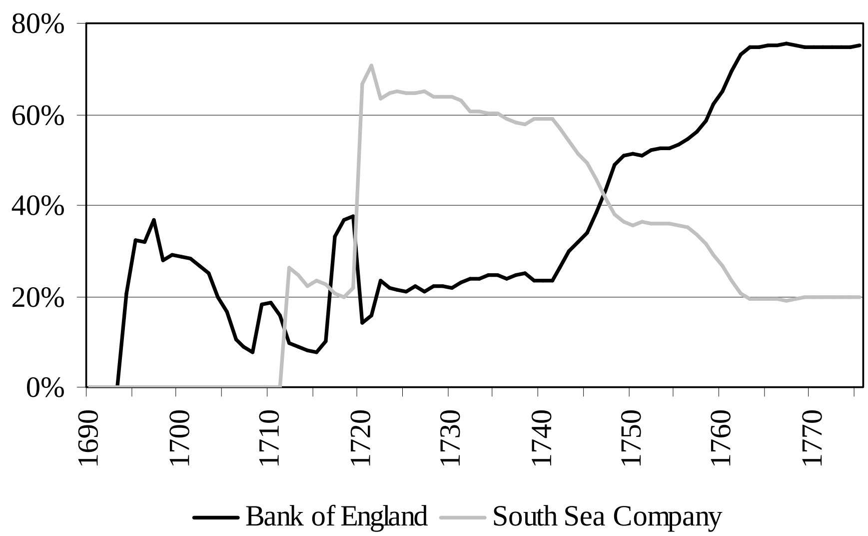
Soon after the collapse of the South Sea Bubble, the government moved to reduce the share of long-term debt held by the South Sea Company. In 1722, the government orchestrated the sale of £4 million in debt from the South Sea Company to the Bank of England, so the South Sea Company could meet some of its immediate obligations. The following year, the South Sea Company agreed to have half of its stock converted into individually owned annuities. The creditors comprising the South Sea Company favored

[69] See Neal 1990, Dale 2004, Temin and Voth 2004.

the proposal because it moved their return from being a dividend decided by the collective to a fixed return asset. A similar restructuring occurred in 1733 when most of the remaining South Sea Stock was converted into annuities. The changes are clearly visible in Figure 1, and they suggest that the collective power of the South Sea Company was greatly reduced.

The impression, however, is incorrect because the South Sea Company continued to administer the new annuities. The South Sea Company recorded transfers of ownership and paid interest. Company administration was necessary for creditor acceptance of the restructuring, and the idea was not novel. The Bank of England had been providing this type of administration on some debts since 1715. When one looks at the share of long-term debt either held or administered by the Bank of England and the South Sea Company in Figure 4, one sees that the South Sea Company remained a dominant debt coordinator in the 1720s and 1730s.[70]

Figure 4: Share of Long-Term Debt Held or Administered by Company



[70] Figure from Quinn 2005.

So the South Sea Company was still in a strong position to coordinate a creditor coalition because the company knew who the creditors were, the company had an ongoing relationship with them, and many of the creditors still owned some South Sea Company stock, so they participated in company governance. For the government, the result was a mixed bag. It permitted the government to selectively threaten redemption, but it dismantled the company's ability to override a minority of holdouts while retaining an effective structure for creditor coordination.

As a result, the South Sea Company retained substantial bargaining power, and little rate restructuring occurred in the 1720s and 1730s despite the marginal rate of new government borrowing having fallen to 3 percent (Homer and Sylla 2005:155). The situation does not change until the War of Austrian Succession (1741-8) produces substantial new government borrowing that is entirely administered by the Bank of England. The Bank of England's share surpasses the South Sea Company in 1747, and the war ends with the Bank of England controlling one half of the long-term debt and the South Sea Company one third.

This shift in relative power set the stage for the largest debt restructuring of the eighteenth century. In 1750, the government wanted creditors holding £57.7 million of long-term debt (72 percent of the national debt) that paid 4 percent to agree to reduce that rate to 3.5 percent immediately and then to 3 percent after 7 years (Dickson 1968: 233-41). Because all the debt was liquid perpetual annuities, the request was only beneficial to the government. The Bank of England, the East India Company, and the South Sea Company quickly refused the government's offer. The three companies directly held 27 percent of these debts, and either the Bank of England or the South Sea Company administered almost all the remainder (Dickson 1967: 232). After the rebuke by the three companies, few investors took the government's offer, so administration of debt provided sufficient coordination to impose an effective credit boycott.

The story, however, was not over. While a majority of the General Court of the Bank of England did not see advantage in the offer in January 1750, the next month the government convinced the Bank of England to reverse its decision. As Dickson notes, "It would be nice to know what arts Gideon [representing the government] used to turn the lion of January into the lamb of February (1968: 236)," but the most likely threat was the government tampering with the Bank of England's monopoly of short-term government finance. The consequence was that individual creditors now rushed to restructure. While the Bank of England received no prize for their vote, the government did woo the East India Company with the right to restructure its own debt.[71] The South Sea Company arranged the best terms by keeping its rate at 4 percent, instead of 3.5 percent like everyone else, until the 1757. Again, with no privileges to consider and only the threat of redemption to fear, the South Sea Company was singularly focused on minimizing the debt restructuring.

The episode shows that a coalition led by corporations could reject an offer to restructure the funded debt, and it may explain why government debt was not restructured in the 1730s and 1740s. The episode also shows that the government could get the Bank of England to undermine those coordinated efforts, and the Bank of England's defection from the coalition was enough to force others to compromise. In the end, the government used its special relationship with the Bank of England to reintroduce the moral hazard of restructuring sustainable debt.

6 Conclusion

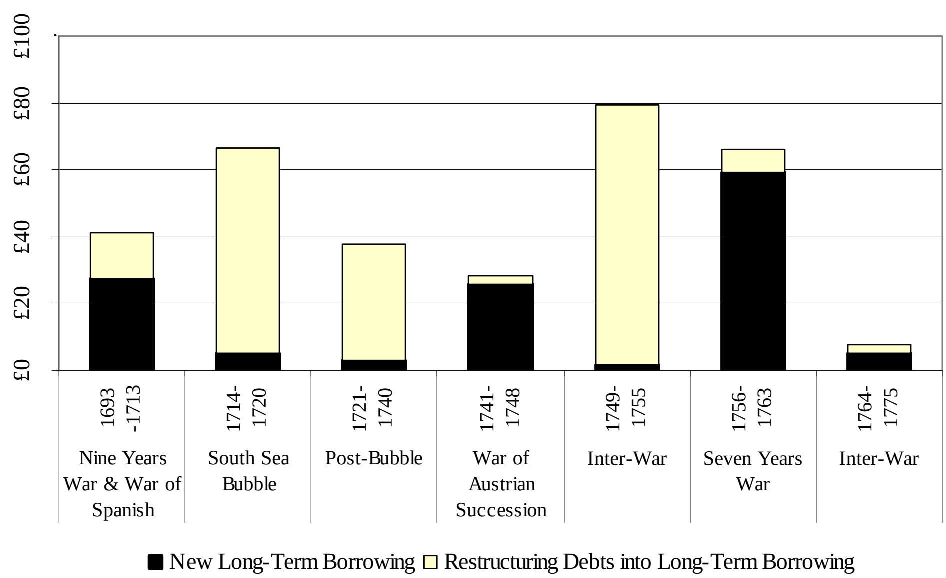
The development of the British system of public debt produced a long arc: securitization begins as a superior way to issue new debt and then becomes a superior way to restructure existing debt. At its peak in 1720, corporate securitization is the dominant form of sovereign debt. After that, securitization is in decline and, eventually, creditor cohesion is undone. The journey brought Britain to a modern style of national debt: dispersed debt ownership, deep secondary markets, low rates and little restructuring. Britain resembled the countries of today that have high credibility ratings and neg-

[71] Parliament granted the East India Company right to issue £4.2 million of new debt with which to refinance its own bond debts (Dickson 1967: 238).

ligible premiums for aggregation costs (Eichengreen and Mody 2003: 82).[72]

The end of restructuring was evident when the Seven Years War (1756-63) again increased borrowing at high wartime rates. The post-war era (1764-1775) involved little debt restructuring. Instead, debts were either redeemed or had clauses that reduced rates to 3 percent at set dates. To see the contrast from earlier wars, Figure 4 reports the amount of new long-term borrowing and the amount of debt restructured into long-term borrowing by era.[73]

Figure 5: Long-Term Debt Created by Era and by Method



Britain also managed to restructure its national debt while never for-

[72] The various perpetual annuities in circulation at mid-century were identical for practical purposes, and one last restructuring, in 1752, consolidated them into two ubiquitous annuities: Three Percent Consols and Reduced Three Percents. The number of long-term issues in circulation fell from 26 to 13.

[73] The numbers in Figure 4 are debt *creation*, so they do not correspond to the level of national debt. Also, to improve clarity, the modest amount of long-term debt created to redeem existing debt is not reported.

mally defaulting on its debts or its grants of privileges to corporations. In contrast, the pressures of the War of Spanish Succession forced Holland into partial default: rates were unilaterally lowered and tax-free debts were taxed (van der Ent *et al* 1999: 265-6). France repeatedly had large-scale defaults in the Eighteenth Century (Velde and Wier 1992). Securitization of a sovereign debt proved a way for Britain to honor its commitments and improve credibility, for voluntary restructuring respected property rights and lessened the overall debt burden.

A long lasting consequence of securitization was to change who administered sovereign debt. In Holland, tax receivers issued long-term sovereign debts and paid the interest on the debts they issued.[74] Before 1688, Britain also had a tax collector-based system of finance, but it issued only short-term debt. This need not have been an obstacle, for the Dutch system had evolved out of a short-term system.[75] Instead, the problem was that the traditional English system answered to the Crown rather than to Parliament, so dismantling the old royal system of borrowing was part of constraining the monarch. Parliament's system had money flow through the Exchequer, a cumbersome Medieval institution. Securitization separated investors from the Exchequer, and the delegation of debt administration to the Bank of England in the 1710s followed from securitization.

Finally, when compared to modern sovereign debt restructuring issues, the peculiarity of the British case is that the government had ways to reward or threaten creditors. The one pool of rewards stemmed from the initial inefficiencies of Britain's debt system, so securitization created value that generated voluntary creditor participation. Another pool of rewards flowed

[74] Interest was automatically the first claim on a receiver's receipts unless explicitly directed otherwise by the provincial government (Fritschy 2003:79).

[75] Holland had been issuing life and term annuities, but in the early 1600s a deep market had developed in Amsterdam for commercial IOUs with maturities of 3, 6 or 12 months (Gelderblom 2003: 627-8). Moreover, it was common for these debts to rollover to create longer-term financing. Holland's tax receivers sold sovereign debt called obligations to this market that mimicked commercial debt and became routinely rolled-over into a long-term instrument (Fritschy 2003: 76). Obligations became the dominant means of borrowing during the 1630s and 1640s, the final two decades of the Dutch Revolt from the Spainish Habsburgs (Fritschy 2003: 66).

from the privileges that the government could grant to companies. Later, the ability to revoke those privileges created threats. The applicability of the British experience to modern sovereigns, then, is directly related to the availability of rewards and threats (besides unilateral default) that a government can use to engineer a debt restructuring.

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