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DP15471

FINANCING THE REBUILDING OF THE CITY OF LONDON AFTER THE GREAT FIRE OF 1666

Nathan Sussman, D'Maris Coffman and Judy Z.
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ECONOMIC HISTORY



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Discussion Paper DP15471
Published 19 November 2020
Submitted 18 November 2020

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www.cepr.org

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JEL Classification: G23, N2, N23, O16, O43

Keywords: England, Financial Development, Financial Intermediation, growth, interest rate, default

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Financing the rebuilding of the City of London after the Great Fire of 1666

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Abstract

This paper presents new archival data to analyse how, in the absence of banking or capital market finance, the London Corporation funded the rebuilding of London after the Great Fire of 1666. The City borrowed at rates much lower than previously thought from its citizens and outside investors to replace vital services and to support large improvement works. Borrowing was partly secured on its' reputation and partly secured by future coal tax receipts. Although records show that the funding from these sources was forthcoming and would have covered costs, and most of the rebuilding project was completed in less than a decade, having invested in public goods without generating the expected fiscal flows, the City defaulted in 1683.

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I Introduction

By 1666 London was almost as large outside the walls as it was within. When the Great Fire of London burned for a week and consumed almost the entire area of the old City, including the main public buildings, wharves, 87 parish churches, and St. Paul's cathedral, there were few deaths. Reportedly, more than 13,000 houses burnt down, and some 70,000 people were displaced.¹ Although the crisis created unprecedented challenges for the country as well as London Corporation, the displacement and disaster relief were managed within the capability of citizens, the Common Council, Parliament, and the generous donations of people near and abroad.² The event gave the restored King an opportunity to demonstrate both generosity and ability. The Crown and City jointly appointed six commissioners to oversee the survey for rebuilding. Parliament quickly passed two acts, an *Act establishing the Fire Court* in 1666 and one setting out new building regulations in February 1667, to aid the City; these provided funding, from a tax on sea-coal, and new building regulations to protect from further disaster and provide for the rebuilt City to be of the best design and materials.³ Recitals in 1670 brought clarity on some aspects of the regulations and legislation for improvement and satisfaction for those who had lost ground rent.⁴ According to some sources, the City was mostly entirely rebuilt by 1673.⁵

Most historians see the aftermath of the Fire as reasonably well-governed, even if that was uncharacteristic of governance in the City as a whole. Rebuilding was, at least, managed in such a way that disaster did not destroy the City's institutions, economy, and wealth. (Colvin 1975, Field 2018, Reddaway 1940).⁶ Although there has long been a lament that officials squandered an opportunity to design a new architectural legacy as a modern ashlar façaded City with wide boulevards, this was because existing property rights were respected and largely enforced. In the standard account, the Fire Courts were effective, and private property owners completed the task of rebuilding according to new stricter regulations within agreed boundaries

¹ Strype; *Survey of London*, all subsequent quotes and estimates including that of Brett James 'Growth' come from Strype, but it should be noted that all estimates of financial sums are calculated in rents, not in building costs.

² Reddaway 1940 'Rebuilding' chap.1; Field *Londoners and the Great Fire* pp.30-57.

³ 18 & 19 Cha. II c. 7; John Noorthouck, 'Book 1, Ch. 15: From the Fire to the death of Charles II', in *A New History of London Including Westminster and Southwark* (London, 1773), pp. 230-255. British History Online <http://www.british-history.ac.uk/o-series/new-history-london/pp230-255> [accessed 25 March 2020].

⁴ See the full list at 'Charles II, 1670: An Additional, Act for the rebuilding of the City of London, uniteing of Parishes and rebuilding of the Cathedrall and Parochiall Churches within the said City.', in *Statutes of the Realm: Volume 5, 1628-80*, ed. John Raithby (s.l, 1819), pp. 665-682. British History Online <http://www.british-history.ac.uk/statutes-realm/vol5/pp665-682> [accessed 25 March 2020].

⁵ This fact can be misleading, because whilst houses and services were replaced improvements in the Churches and at St Paul's continued to the 1720s. See Baker 'London Rebuilding' pp.6-7 for a timeline of City investment unfortunately without primary references).

⁶ Reddaway, *The Rebuilding*, chap. 2, 3, Field, *Londoners and the Great Fire* pp.30-57. Colvin *History* p.355-362

by the mid-1670s. Reddaway describes how enforcing rights involved the Corporation and commissioners for rebuilding prevailing over many vested and private interests.⁷

However, what is also apparent from Reddaway's detailed narrative is that the City had faced extreme financial challenges, if not distress, before the Fire, and that there were serious fears that rebuilding would be compromised by these financial pressures, while at the same time that it would exacerbate them. In the last eighty years, since Reddaway's account appeared, the financial aspects of the Fire have not been examined, despite the obvious concomitant issues of the Crown's default in 1672 and the suspension of the City's privileges in the *quo-warranto* challenge of the 1680s and the associated Orphans' fund default. The City was in deep, long-term financial trouble throughout the seventeenth century that had only been recently ameliorated in the early part of the Restoration.⁸ The plague of 1665 had 'caused havoc,' and at the time of the Fire, the City had no capacity for the expenditure required to repair, rebuild, and restore.⁹ The City was short reserves and income, and the problems that had originated in the late Tudor period still beset the Corporation.

Nevertheless, in the immediate aftermath of the Fire, and through the Third Anglo-Dutch War and the Exclusion Crisis, the City set about rebuilding Guildhall, Bridewell, Newgate, and the Sessions House, restoring the conduits, comptors, and the markets. Over the longer term, they managed and contributed to the construction of 54 new Churches for the City and the massive project that was the new St Paul's. As the archival evidence will now demonstrate, the Corporation managed to do so partly because they had access to private credit at rates much lower than that enjoyed by the Crown. This fact has not been discussed in previous literature. Yet, the Corporation's access to cheap credit was not sufficient to prevent default in 1683.

Although the definitive work by Reddaway contains two excellent chapters on the finances, in general, the historiography has tended to focus on the political and social ramifications of the Fire. Most recently, Field examined the private-order problem of rehousing and individual citizens.¹⁰ The history of the Orphans' fund, the abuse of which dates back to the sixteenth and early seventeenth century and was one of the main causes of the City's eventual default, was described in detail by Carlton but without relating it to the broader financial insolvency and

⁷ Reddaway, *op. cit.*

⁸ Reddaway *op cit.* Harding *The Crown, the City, and the Orphans* p.51-60.

⁹ Reddaway *op cit.* p191.

¹⁰ Field, *Londoners and the Great Fire* pp. 30-57

management of the Corporation in the decades after the Fire.¹¹ Doolittle studied the occurrence and resolution of the Orphans' default but specifically exempted the fire costs from affecting the City's default.¹² The account by Harding of the City's finances through this period notes the apparent mismanagement by the City of its financial resources and its resistance to reform, but does not produce any quantitative evidence and only discusses in passing the rebuilding's effects on the default.¹³ There is more literature on the finances of the London Corporation before the Civil Wars and Restoration. Richards noted the special role of the London Corporation as a government banker.¹⁴ Wareham discusses the period before the Fire and the levying of the hearth tax on the City.¹⁵ Coates recently studied the period of financial difficulties of the Corporation through the turbulent years of the Civil Wars and Interregnum.¹⁶ Unfortunately, the best account of the political and social developments in the City and after the Restoration is entirely silent on matters of finance.¹⁷

Our study relates to several strands of literature on early modern finance. Firstly, and most obviously, the significant literature on the 'credible commitment' thesis and the debate around the role of institutions in the development of financial markets from North & Weingast onwards.¹⁸ Although the original thesis about the role of the Glorious Revolution in establishing credible commitment has already been overtaken in the institutional debate, the question of the origins of secondary markets for public debt securities in Britain remains contested: Coffman and Wennerlind posit the origins of the financial Revolution in a fiscal Revolution of the Interregnum or in the monetary crises of the early Stuart period, whereas others focus on the eighteenth century.¹⁹ The timing of the Fire between the Restoration and the Revolution provides a case study that therefore is directly pertinent to how financial innovation and development occurred in England. There has also been enough research on seventeenth-century innovation, trade, and growth to challenge the simplistic Stuart story of economic and financial backwardness but the mechanics of public and private credit and

¹¹ Carlton, *The court of orphans*

¹² Doolittle 'The City of London's Debt to its Orphans', pp. 46–59.

¹³ Harding 'The Crown, the City, and the Orphans' pp. 51–60

¹⁴ Richards, *Early History*, pp. 50–60

¹⁵ Wareham 'The hearth tax and empty properties', pp.278–292.

¹⁶ Coates, *The Impact of the English civil war* pp.199–216.

¹⁷ De Krey, *London and the Restoration*.

¹⁸ North, & Weingast, *Constitutions and commitment*. pp.803–832. Coffman, Leonard, & Neal, *Questioning credible commitment*, pp76–103, 125–136. Sussman & Yafeh, *Institutions, reforms, and country risk*, pp. 442–467; *Institutional reforms, financial development and sovereign debt: Britain 1690–1790*, pp. 906–935.

¹⁹ Coffman 'Credibility, transparency, accountability' pp 76–103; Wennerlind *Casualties of credit* pp.82–112, Murphy, 'Demanding credible commitment' pp. 178–197; Temin & Voth *Prometheus Shackled* pp.25–30, pp.72–78.

finance before the 1690s is still poorly understood, despite the classic works by Ashton and his contemporaries which focussed on mid-century.²⁰

Our findings also speak to a larger debate about municipal borrowing and taxation by cities and provinces in early modern Europe, some of which look particularly at the role of political and economic elites in municipal debt markets.²¹ This literature intersects with the aforementioned ‘credible commitment’ literature by contrasting the experience of sub-sovereign institutions, which largely borrowed from their citizenry, with those of crowns and parliaments.

Secondly, and possibly more immediately, we contribute to a literature about prevailing rates of interest and the factors that determined and caused them to change in early modern Europe; the debate has tended to focus on representative institutions and the role played by the supply of capital and the development of secondary markets and fiscal centralization, or lack thereof.²² We also contribute to the history of London’s growth in this period by, for the first time connecting the expenditure on rebuilding with the service boom noted in recent output growth literature.²³

Our findings on rates of interest paid by the Corporation of London can also be profitably compared with those in informal credit markets across Europe at this time.²⁴ Moreover, this study can contribute to a nascent literature on infrastructure finance in early modern Europe, which emphasises the importance of properly contextualising the political-institutional embeddedness of major players before ascribing path-dependence.²⁵

In the following sections, we demonstrate how the London Corporation financed the aftermath of the disaster and invested in the future of the City. Using a variety of archival sources of the

²⁰ Zahedieh, ‘*Regulation, rent-seeking and the Glorious Revolution*’, pp. 865-890; Broadberry et al *British Economic Growth*; Ashton, 1960. *The Crown and the money market*; Nichols *English government borrowing*, pp. 83–104. O’Brien, ‘The political economy of British taxation’, pp.1–32.

²¹ Limberger, and Ucendo, eds., *Taxation and debt in the early modern City*. ; Baguet, ‘Social change and markets for urban credit’ p.347; De Vijlder and Limberger, ‘Public or private interests?’ pp.301-326 ; ‘t Hart, et al, ‘Maximising revenues’ pp.1-18; Costa, ‘As finanças municipais em Portugal no século XVIII’, pp. 123-144; Stasavage, *States of credit* pp.25-46

²² Stasavage, *States of credit* pp.25-46; Gelderblom & Jonker, ‘Public Finance and Economic Growth’, pp. 1-39; Dincecco, ‘Fiscal centralization’, pp. 48–103; *Political transformations and public finances: Europe, 1650–1913*.

²³ Broadberry et al, *British Economic Growth*.

²⁴ Lorenzini, M., Lorandini, C. and Coffman, D.M. eds., 2018. *Financing in Europe: Evolution, Coexistence and Complementarity of Lending Practices from the Middle Ages to Modern Times*.

²⁵ Lorenzini, ‘Infrastructure Financing in the Early Modern Age’; De Luca and Lorenzini. *“A taxonomy of infrastructure financing in Europe on the long run, pp.10-36.*

London Corporation, we have been able to reconstruct the building expenditures and to show how they were financed by the new sea-coal tax and borrowing from private citizens. We show that the Corporation could borrow from citizens at much lower rates than financial historians have previously realised. These low rates, at a time of crisis in all political and social institutions, are a major contribution of this paper. However, we further document, for the first time, the mechanics of how the deficit in the main source of finance (coal cash) that the City relied upon brought about the eventual default in 1683.²⁶ We show the inadequacy of the taxes collected and the initial overrun in expenditure that necessitated borrowing on a large scale. We document the financial manoeuvring of the Corporation that allowed it to defer default for a few years. The entirely new data shed light on the nature of private and public funding of infrastructure projects before modern banking finance.

We show that the City's default in 1683, although likely given the Orphans' situation, was not entirely inevitable. In fact, the City may have benefitted from the Crown's default – the Great Stop of the Exchequer -in 1672. We revisit the question posed by Harding as to why the City pursued the strategy they did.²⁷

II Financial Background.

The long-standing debate about the borrowing of sovereigns and the literature about the effects of good or bad institutions on markets for finance and investment engage questions of commitment, reliability, reputation, and fiscal capacity on the cost of borrowing. According to the view originally put forward by North & Weingast, reliable checks on the borrower and protection of property rights bring about trust, effective contracts, and prudent management of assets. These allow credible borrowers, with strong incentives to invest, to borrow at a low cost contributing to economic growth.

Existing accounts of the finances of Corporation of London in the seventeenth-century seem to contradict the framing by North and Weingast: the City enjoyed both cheap and plentiful credit and was poorly governed by an oligarchy throughout the period before, during and after the civil war, and for many decades into the eighteenth century as well.²⁸ Moreover, the two decades after the Fire were politically unstable, including a series of events that directly

²⁶ But see Sussman 'Financial Development of London'

²⁷ Harding *The Crown, the City, and the Orphans*, p.60

²⁸ Harding *ibid*; Doolittle, *The City of London's Debt to its Orphans*; Zahedieh, *Capital and Colonies* pp. 90-103.

affected the City, such as the crippling of the English fleet in the Medway in 1667; the vicissitudes of the ongoing Anglo-Dutch war, and the City's influence in the unfolding constitutional crisis that produced the Exclusion Crisis and led in turn to the Monmouth rebellion and the eventual Revolution on 1688.

With new data on the financing of the reconstruction after the London Fire of 1666, we can shed new light on fiscal capacity and institutional debates because we can compare the cost of two types of borrowing: one secured by a tax approved by Parliament and the other, unsecured, based on the reputation of the London Corporation. This case questions the traditional narratives on commitment, reputation, and fiscal capacity. It also raises questions about how we apply or test notions of credibility and commitment as the indicators of effective financial management that the literature has until now merely asserted. Firstly, what is credibility? The Corporation, although lacking in governance and prudence, until 1683, always repaid - in that sense, it was credible. As Sussman and Yafeh have argued before, repayment mattered more to investors than institutional settings.²⁹ Secondly, by implication, are twenty-first-century historians' perceptions of what was credible at the time at odds with what contemporaries thought?

In the seventeenth century, the institutions of leveraged finance were not as developed as those after the 1690s, which have been more recently much discussed and analysed.³⁰ English banking, in the modern sense beyond the traditional scope of goldsmith bankers and scribes, was not developed.³¹ Financial markets were, however, well-established, and municipalities had some of the most advanced means of raising income.³² A key feature of municipal finance throughout Europe was its differentiation between annuities issued by municipalities and short-term lending to institutions. The literature on municipal finance in this period is conspicuously sparse for the British Isles.

It is well established that the wealthy elite of the City had been charging a premium to the Crown for its short-term borrowing needs for some time. Changes in taxation and excise through the early seventeenth century were in some way designed to meet these financing

²⁹ Sussman and Yafeh, *Institutional reforms*

³⁰ Temin and Voth, *Prometheus Shackled*.

³¹ Melton 'Clayton and the Origins'; Richards *Early History*

³² Boone, Davids, Janssens *Urban public debts*; Chilosi Shulze, Volckart 'Benefits of Empire' pp. 637-672.

costs.³³ Through the Tudor period, finance of large scale had been procured for the Crown by wealthy merchant agents in Antwerp or Amsterdam, but increasingly, despite the relative success of the fiscal experimentation of during the Civil Wars and Interregnum detailed by Coffman (2013) and others, in the Stuart period it was lent by a fairly small group of English merchants-financiers who syndicated the loans as receivers of the revenue.³⁴ Throughout most of the seventeenth-century, finance at this level remained a private-order affair in the hands of these wealthy merchants; the Goldsmith Bankers lent to the Crown to finance the failed Anglo-Dutch Wars, although the scale of lending from London merchants to the Crown increased as London's wealth grew.³⁵ In the wider financial market, this is the period through which bills of exchange, annuities, and promissory notes became readily assignable. However, the more readily recognisable innovations of exchequer bills and convertible instruments were not developed until the first decades of the eighteenth century.³⁶

In the 1660s, the City's finances were widely known and understood to be unstable – but also incriminated in political postures and wrangles between factions relating to the Restoration. The Corporation's income had been a problem since the Tudor period, and its expenditure even more so. Pamphlet literature from the 1640s and 50s showing the City's indebtedness to the Orphans Fund and its expenditure on things other than services for the City was recycled in the 1670s and 1680s to attack the Corporation's ongoing pillaging of the Orphans' Fund and was part of a long-running debate between Presbyterian aldermen and their more radical critics in the Corporation itself.³⁷ Perhaps as a consequence of this, many of the City's potential Aldermen and councillors, who had deep pockets and extensive credit due to their business as financiers, merchants, bureaucrats, and entrepreneurs, were willing to pay hundreds of pounds to avoid the burden of serving as officials.³⁸ But despite the known financial precariousness in its accounts, the City established itself as a major financial institution in England during the sixteenth century in lending to the Crown and the East India Company. The business of taking Orphans deposits accelerated after the Civil War and Restoration.

³³ Coffman, *Towards a New Jerusalem*

³⁴ Richards 'Early History', p.5-11; Chandaman 'The English Public Revenue'

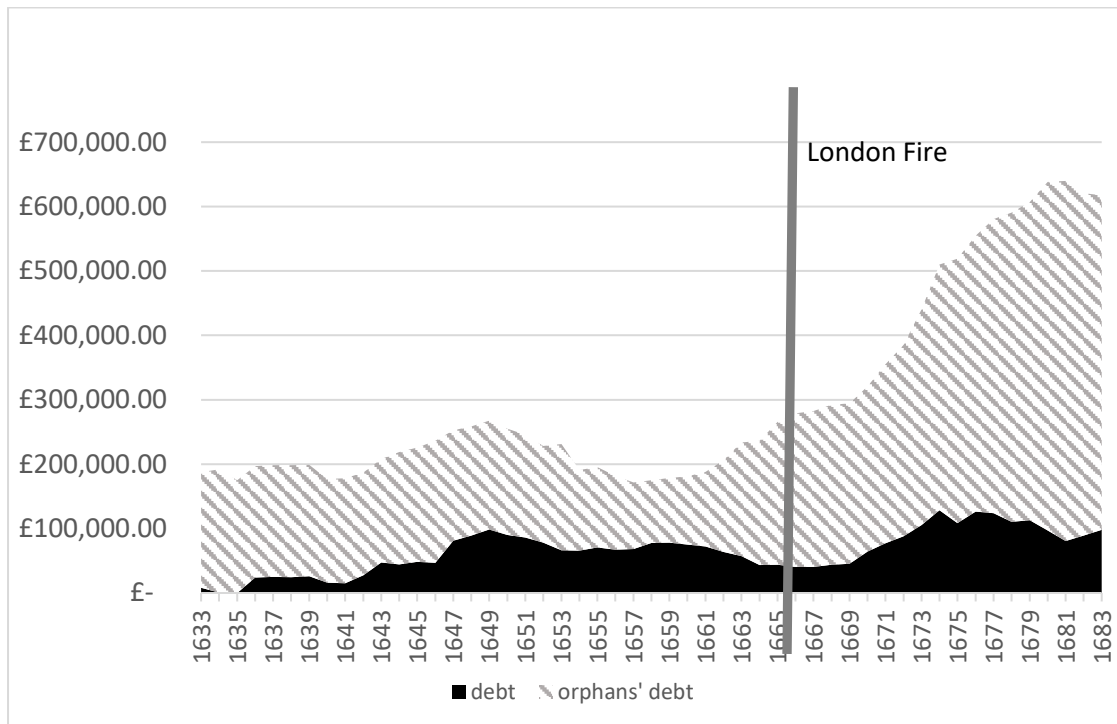
³⁵ Horsefield 'Great Stop', p. 512

³⁶ Richards *Early History*; Temin & Voth *Prometheus Shackled*; Kleer 'New Species'

³⁷ Farnell *Politics of the City*, pp.270-308

³⁸ Their fines were an important source of income for the City. In fact, after rental income fines were the second most important source of funds. Earle 1989, Quinn 2001

Figure 1
London Corporation debt 1633 - 1683



The City's Treasury accounts show rents as the main income through the 1600s, closely followed by a (declining) amount for fines. The other sources were fees and fines from apprentices, sale of positions, and income from markets. However, the most important source of cash flow (rather than income) for the City was the Orphans fund. The fund, the municipal version of the Court of Wards in operation since the middle ages, took deposits on behalf of children inheriting before their age of majority.³⁹ It accrued much of its interest and return for its dependent investors from the City's ability to borrow from it at preferential rates. Harding asserted that this important source of credit meant the City avoided reforming its finances through the early seventeenth century and the interregnum period.⁴⁰ Yet, unlike the Stuart monarchs whose financial reputation had waxed and waned with the embittered political processes to oust and then restore them, the London Corporation enjoyed a solid reputation as a borrower over the century preceding the Fire because it managed to uphold its financial commitments.

³⁹ See Carlton, *Court of Orphans* pp.66 – 103 for a full explanation.

⁴⁰ Harding, 'The Crown, the City, and the Orphans' pp.51-60

All other authors on the topic have noted that the City's means of using the Orphans funds were almost bound to bring about disaster. They claim that by borrowing short, and lending or operating long with the proceeds – as not just the City but the Crown practiced with excise revenues – the City committed the sin of maturity mismatch and constantly risked a liquidity crisis.⁴¹ However, it can also be argued that their usage of the Orphans fund brought about just the opposite – deposits in the orphan fund were for long periods (on average 14 years) and were used, in periods of deficits, to provide short-term funding. The crisis occurred only when most of the borrowing was used to pay the interest on existing debt. The insolvency issue arises because the funds borrowed did not generate additional revenues that could be used to pay the interest on the debt.

While annual cash flows in the accounts show the risk of insolvency in the earlier part of the century, recovery had been made during the Interregnum. Figure 1 suggests that the expenditures forced upon the City during the Civil War, including the loan to Parliament to send the Scots' army home, and the Crown's default on the loans the City made to it – were at least in part responsible for the precarious financial position of the City until 1649. The City's finances had teetered at a crisis point during the 1640s. However, during the period of Parliamentary rule, the City's expenses were reduced, and this allowed it to pursue fiscal consolidation. Between 1649 and 1658, due to a reforming movement by the councillors, the City's ordinary debt fell from £95,000 to £44,000.⁴² Debt to the Orphans was cut by 40% in the decade from 1649-1659, and total debt to Orphans and ordinary bottomed out at £175,000 in 1658.

III The financial position at the outset of rebuilding

By the advent of the Fire, however, the City's finances had not improved any further; in fact, they had deteriorated. It is pertinent to note that the Restoration of a Stuart king (the source of instability in much of the previous Glorious Revolution literature) brought down rather than raised the interest costs of borrowing. However, 'the expenses of the Restoration were heavy' (Reddaway p.176) as the City offered gifts and pageants to the new monarch, and the Orphans' debt began to climb.⁴³ At the eve of the Fire, therefore, expenditure once again exceeded income, and the plague in 1665 prevented further consolidation. So, in late 1666 as the City

⁴¹ Coffman 'Credibility, transparency, accountability', pp. 76-103

⁴² It can be veiwed that the lower expenditure was a result of lower dues to the Crown, as implied by Doolittle pp. 45-69, but Reddaway *Rebuilding* p.171-9 asserts there was general reform also.

⁴³ Reddaway, op cit. p.176

burned, the Corporation was in a position where it had improved its historical debt situation, but, crucially, it was in a precarious financial situation again.

As there were calls for a full impartial survey of sites to enable planning for improvements to be made as part of the rebuilding, it was apparent that the City simply did not have the financial resources to reinstate what it must, nor the management resources to coerce property owners to submit to such a wide-ranging survey. Instead, the Corporation took its lead on improvements from the Royal proclamation, and the job of surveying was imposed only when rebuilding property owners applied to the Chamber.⁴⁴ Financially, ‘a state of affairs which had already entered the danger zone became desperate’.⁴⁵ The City appealed immediately to Parliament. Parliament supported the requirement and passed the Rebuilding Act in 1667 (19. Char II. c.8) that allocated a duty of 1 shilling per ton on sea-coal landed at the Customs House to finance reconstruction in the City. The subsequent Act of 1670 awarded additional duty of 2 shillings. However, it was not an allocation without proviso. Parliament apportioned the tax with instructions that it be allocated as follows: 25% (6 pennies) to City reconstruction, 56% (13.5 pennies) to rebuild parochial churches, and 19% (4.5 pennies) for the rebuilding of St. Paul’s Cathedral.⁴⁶

But for all other work – the business of repairing the Guildhall, its Chapel, the comptors, the conduits, the markets, and the quays, the City faced a need to act quickly. Without a delay of finance, and in the meantime, other projects also became pressing: the City spent £10,000 on fortifications against the Dutch after the Medway Battle in 1667.⁴⁷ Since all rental income would be severely curtailed until new buildings were erected and occupied, the City had even less income than before the crisis. It could turn to neither wards nor the livery companies (guilds) for cash either, although it is not clear this would have been an expected strategy, as all of them had to rebuild their businesses and halls. The nature of investment in infrastructure projects is that they require large amounts of capital upfront. The returns from such projects accrue over long periods, and therefore, they require access to financial markets or deep-pocketed investors to finance them. Notably, the Common Council considered their position

⁴⁴ Cooper ‘Robert Hooke’s Work as Surveyor’ pp. 162-165

⁴⁵ Reddaway. *Rebuilding* p.178

⁴⁶ xxxiv to xxxvii of ‘Charles II, 1670: An Additionall, Act for the rebuilding of the City of London.’

⁴⁷ De Krey *London and the Restoration*, pp.95-6

and the capital available to them and commissioned a report on finances as the problem of reconstruction was faced.⁴⁸ It highlighted the precariousness of the situation.

The proposed source of funds – the coal tax, would accrue over time and, therefore, as one might expect with such income based on taxation, and as indicated by the later increase in rate and duration, its revenue lagged significantly behind actual expenditures. Moreover, as was known at the time, coal imports into the City fluctuated. So any tax on the chaldrons would provide a substantial income in the long run, but one that might vary unreliably.⁴⁹

IV The City's projects and works

It is extremely difficult to get an accurate estimate of what the City did spend on rebuilding or to know precisely what was carried out. Although there was much talk of £100,000 being required, the actual projects were never accurately estimated or recorded in Corporation records.⁵⁰ If the Corporations' surveyor - Nicolas Duncombe – submitted estimates to the Aldermen or Chamberlain, they have not survived, and the rebuilding costs that are documented in the limited vouchers are not complete.⁵¹ Expenditures are listed in the Chamberlains accounts, but they are not directly attributable to projects. The organisational challenges of projects as we understand them today, and their required investment, were well understood and much discussed in the late seventeenth century.⁵² It is relevant to note that in the 1670s accurate estimate of projects was not thought of as possible. The predominant view of the day was that contracts for work should incentivize value for money and quality of work, but that the process of contracting for projects risked opportunism and misspecification, and that the structure of contract could mitigate this.⁵³ Figure 2 shows that expenditure peaked in the early 1670s.

In rebuilding, the City faced the immediate need to restore the ability to levy customs and excise duties from imports to the quays and from the operation of the markets, but beyond also saw the opportunity and need to improve services and transportation in the City. Westminster and other suburbs had been growing in activity and influence throughout the seventeenth century. There was a real fear that if rebuilding was not done quickly, citizens would not return.

⁴⁸ JCC (Journal of Common Council) 46.

⁴⁹ Hatcher *The British Coal Industry*, fig 3.3; Cavert, *Pollution*, p. 99.

⁵⁰ Reddaway op.cit. p. 171.

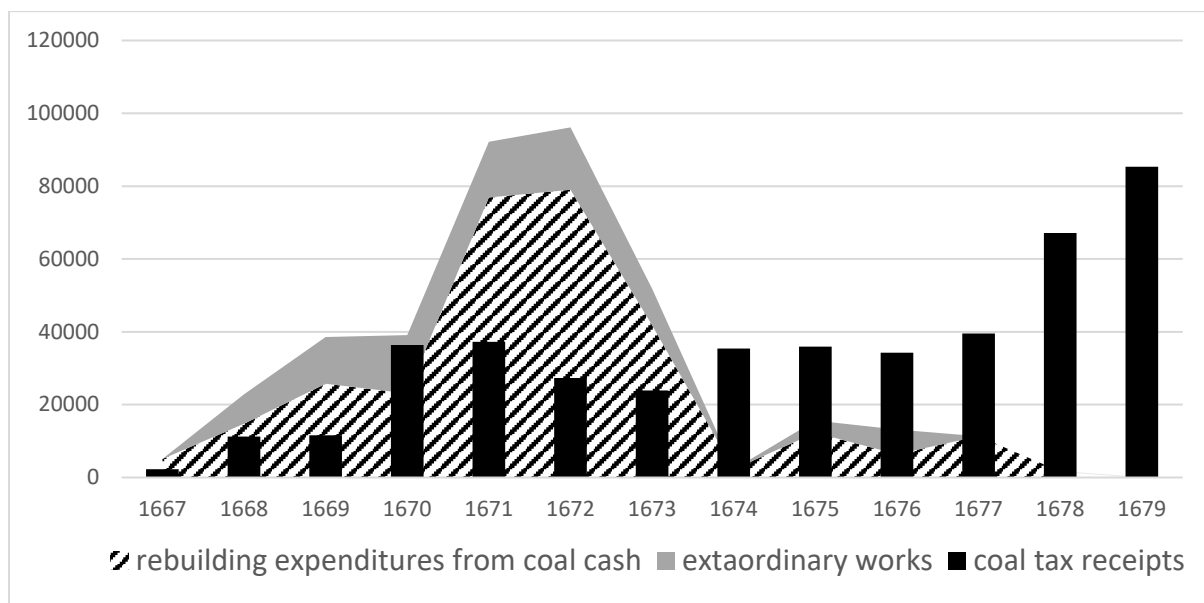
⁵¹ LMA COL SJ/ 3

⁵² Stephenson 'The Economic Institutions', pp.229-240

⁵³ Campbell 'Building St Pauls' pp.60-69

The privileges, incomes, and rents that the City enjoyed would be forfeit and dissipated. The desire for improvement is also evidenced by the number of plans that were pamphleted and discussed and in the appointment of commissioners jointly for the Crown and City.⁵⁴ What was the nature of the investment that the City attempted to make? It was not housing, nor was it commercial premises. The Livery Halls were owned and rebuilt by the guilds. St Paul's and the Churches, which had experienced chronic underinvestment throughout the Tudor and early Stuart periods, were now stipulated for replacement by Parliament.

Figure 2
London Corporation expenditures and revenue from coal tax 1667-1679

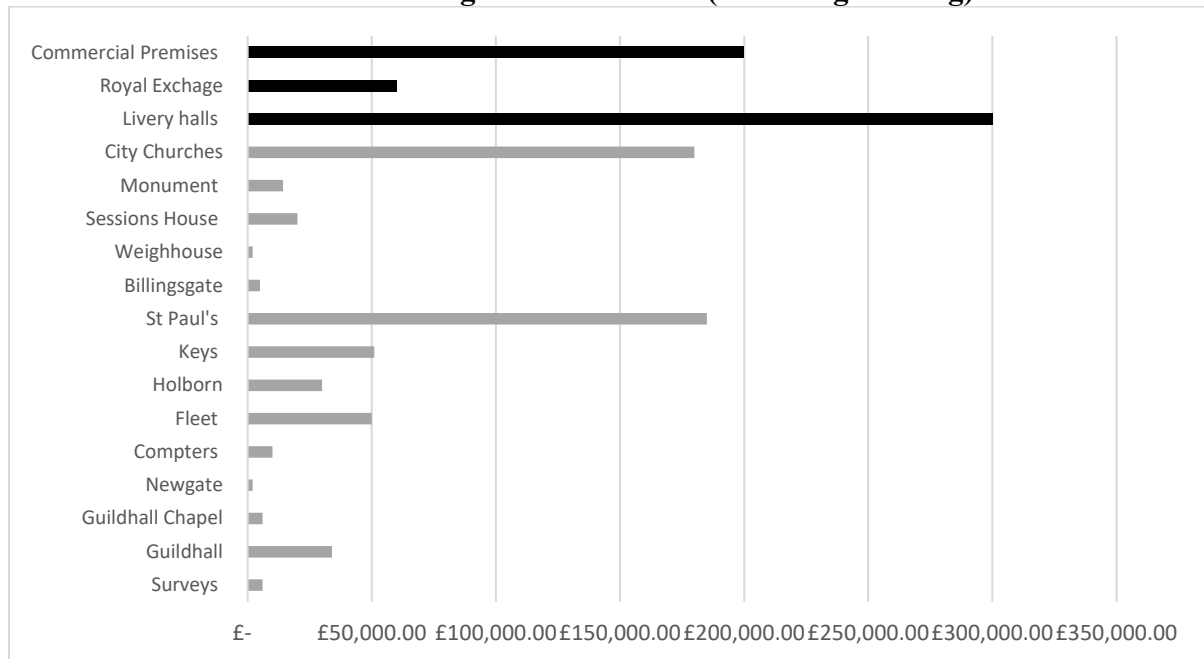


The City had to reinstate the markets, the conduits and comptors, and the Guildhall. They also planned to widen the streets at Cheapside east and west, Ludgate, Thames Street, and Holborn bridge to Paternoster Row, raise the banks or level of streets along the northside of the Thames, build new quays between London Bridge and Temple, and wharf and reconstruct the Fleet ditch from the Thames to Farringdon. The cost of doing so was, in relation to the total rebuilding costs, comparatively small (Figure 3), but any relative calculation of costs depends on the cost of housing. The vast majority of housing had been in private hands and was rebuilt as such. Estimates of the cost of building are not as easy as taking the £300 figure per house given by Strype, however, because Strype's figures are for the loss of rental income rather than the cost

⁵⁴ Reddaway *Rebuilding* pp.42-49,55; Baker *London Rebuilding* pp.4-7.

of labour and materials of a rebuild.⁵⁵ The costs of building in brick according to the Fire regulations range from £100 to well over £300.⁵⁶

Figure 3
Public and Private rebuilding costs in London (excluding housing) 1666 – 1680.



(Source: see text)

Field shows that private rebuilding was often financed by a reduction in rents for leaseholders who could afford to build, and although it was swift, it displaced many members of the community.⁵⁷ Wealthier residents were more likely to return to the City, while poorer households were more permanently displaced. With over 13,000 houses supposedly replaced and improved, the amount invested would have been between £1.3m and £4m, dwarfing the cost of St Paul's (eventually built for under £1m) or the churches (£250,000), or any Corporation project. Figure 4 shows private and public non-residential cost estimates for the rebuilding period to the mid-1680s.

⁵⁵ <https://www.dhi.ac.uk/strype pp.222-240>

⁵⁶ McKellar, *Birth* p. 71-75

⁵⁷ Field, *Londoners and the Great Fire*, pp.59-98

Since the City's accounts of the rebuilding are not complete, the cost and completion of these projects are unclear, and it is hard to be entirely accurate about exactly how the funds were spent in these five years.⁵⁸ There are no surviving estimates for work. The Chamberlain's accounts give summaries of sums paid out, but by whom they were paid to rather than a site by site budget or charge. But a summary sheet in the City archives shows that for the Guildhall, its Chapel, the Sessions House, Woodstreet, Newgate, Fleet Bridge, Billingsgate Dock, Poultry Compter, Ludgate, Bridewell Aldersgate, total amounts borrowed from the Chamberlain for those works was £83,557 at Michaelmas 1673.⁵⁹ The Corporation spent considerable resources appointing surveyors – including Robert Hooke - to restate or enforce property boundaries which were contested, and to mark out the boundaries of newly widened streets and thoroughfares. It is notable that they also paid agents or farmers to collect the coal tax. The wharfing of the Fleet ditch, where the work was led by Thomas Fitch in 1671–1674, cost at least £51,360, exclusive of the purchase of any lands.⁶⁰ The Monument completed in 1677 cost £13,500. There were substantial further investments, paid for by others, such as Wren's fine new Customs House, which cost in excess of £10,000 in 1668-9, which was paid for by the Office of the King's Works.⁶¹ Baker asserts that 9,000 houses were rebuilt by 1673 and that more than seventy percent of the public buildings to be rebuilt were completed by then.⁶² Some rebuilding projects, most notably and most costly - St Paul's cathedral, continued into the first decade of the eighteenth century and are mostly beyond the scope of this paper.

To put this expenditure in a broader economic context (although any per capita figures for the whole country will hugely underestimate the relative output for the City), Broadberry et al. estimate that total annual GDP in England in the 1660s was £42.59 m, rising to more than £52 m in the 1670s, and that building output was equivalent to about 7.5% of gross domestic product in the 1670s, or about £3.8 m.⁶³ Given an English population of 5.2 million and a London population of 575,000 at the end of the seventeenth century, if London's market for construction were in line with its share of the population, annual building expenditure or output (albeit mostly on housing) through these decades should have been in the region of £400,000 before any rebuilding costs.

⁵⁸ Perks, *Essays*, pp.59-65

⁵⁹ LMA COL/SJ/03/22-23, Knoop and Jones (1935) estimated the value of mason's contracts alone on 'municipal' projects to have been £24,482.

⁶⁰ Skempton *A biographical dictionary* pp.228-9.

⁶¹ Gater et al, *Survey*

⁶² Baker, *London's Rebuilding* p.7. He also says that only 9,000 houses were replaced (no citation) and 3,500 of those completed were still empty by 1674.

⁶³ Broadberry et al *British Economic Growth* pp.187-244.

Table 1. Operating Budget of the Coal Cash Fund account 1667 – 1787 in £

Project	General		Parochial Churches		St Paul's Cathedral		£ Total			
Expense	tax	cost	tax	cost	Tax	cost	tax income	cost	cost	cost
Construction	382848	320163	265467	265467	88489	88302	736804	673932	105345	779278
Int'st paid to Corp								26485		26485
Int'st paid to public								33102	119642	152744
Cash		3098				187		3285		3285
Total							736804	736804	224987	961792
Financial account										
							Borrowed	Repaid	Borrowed	Borrowed
Borrow from public							102465	102465	224987	327453
Borrow from Corp.							99780	99780		
Debt to public									224987	224987

Much of the administrative, surveying, land purchase and planning work and costs found in City archives relate to a large improvement project along the Waterline, planned as a 'Key or Public and Open Wharfe' to run from Temple to London Bridge incorporating the Fleet Ditch, and quays at Queenhithe and St Benet's. Preparation for this project, which was never completed, takes up a large portion of the accounts of the coal cash funds. The 1667 'Act for the rebuilding' anticipated the investment and stated that no building was to take place within 40 feet of the River from Temple to the Tower, nor within 40 feet of the Fleet. These lands were purchased by the City, but the quays project was never realized, and the completed wharfing of the Fleet Ditch did not succeed.⁶⁴

The evidence on these planned but failed developments seem to indicate that the City's financial and administrative achievements in rebuilding were associated with a general, and puzzling, lack of commercial stewardship. This, despite the fact, as Harding points out, the Aldermen and common councillors were hugely commercially able and successful on their own account.⁶⁵ Despite Wren's stewardship, the ditch suffered from engineering disasters, as the engineering of the supporting walls were not adequate to prevent the collapse of the ditch sides, and, after remedial works, none of the arches rented for income as intended. Instead, the area at the head of the ditch, now Blackfriars, became a dumping ground for commercial waste.⁶⁶ The quays, also planned to bring new rental income, were not managed by the City adequately, and the Office for Kings works eventually completed the customs house in the 1680s. Thus, it seems that the City, although astute at managing cash flow and enforcing

⁶⁴ Perks, *Essays on Old London*, p.51-70

⁶⁵ Harding, *The Crown, the City, and the Orphans* pp.51-60

⁶⁶ Perks, *Essays*, p.51-70;

property boundaries and rights, was not capable of commercializing the new lands and generating rents from them.⁶⁷

In all, between 1667 and 1683, the City spent close to £1m, (table 1), including financing costs. However, as table 2 shows, direct expenditure on rebuilding varied over the key period to the late 1670's, where just under £400,000 or more had been deployed by 1677 on rebuilding and extraordinary works, where excluding finance, the annual average between 1668 and 1677 was £28,000. Expenditures outpaced tax revenues by 1672. How did the City raise funds and bridge the gap between income and rebuilding?

Table 2. London Corporation Operating Costs and Rebuilding Costs in £.

	Operating costs	Rebuilding expenditure	Extraordinary works	Coal tax receipts
1666	17358			
1667	26008			2280
1668	27580	5103	8136	11219
1669	28665	14724	12821	11634
1670	34080	25762	16008	36391
1671	33556	23073	15293	37238
1672	30185	76875	17114	27336
1673	20617	79024	9963	23881
1674	15768	41866	0	35400
1675	19139	2262	3389	35979
1676	22450	12268	6775	34251
1677	18581	6401		39580
1678	14773	11373		67147
1679	11023	1656		85342

V. Expenditure, borrowing and the coal cash fund

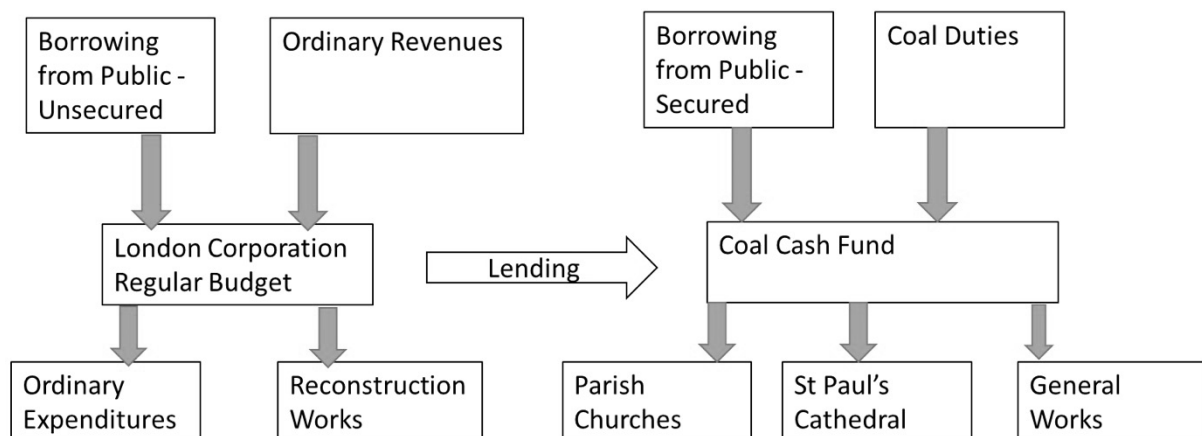
The coal cash fund, established in 1667, operated as a separate legal and accounting identity under the London Corporation and was managed by the Chamberlain of the London Corporation. Figure 4 shows a schematic overview of the relationship between the regular finances of the London Corporation and that of the coal cash fund.

The challenge of the coal tax revenue was that it did not provide the City with timely and predictable cash flow. Therefore, by granting it, Parliament expected that the Corporation

⁶⁷ As is speculated on also by Reddaway *Rebuilding* pp 191-193, also see Perks, *Essays* op.cit

would be able to meet the initial shortfall and manage the challenge of the gap between income and outlay in the long run with some other kind of financial instrument. Financial management would have to deal with the variation in the annual amounts received, not just the initial shortfall. Until 1670, the portion of the tax allocated to the City was insufficient. However, the tax was, of course, dependent on imports, which were dependent on seasonal variance and the coastal trade and shipping of coals from Newcastle. Both were affected by the outbreak of war with the Dutch in 1672, but they were also affected by large variations in consumption and pricing that drove purchasers of domestic coal (the largest users) to buy at low prices and store, and so the tax revenues also fluctuated by as much as 60%.⁶⁸ The accounts show that the rebuilding expenditure, which commenced in 1667, reached a short-term peak during 1671/2, falling off during 1673, perhaps due to the outbreak of the Anglo-Dutch War. Coal tax revenues were declined from £32,323 in 1671 to £27,336 in 1672 and only £23,881 in 1673.⁶⁹

Figure 4: A schematic view of financing the rebuilding of London after the Fire of 1666



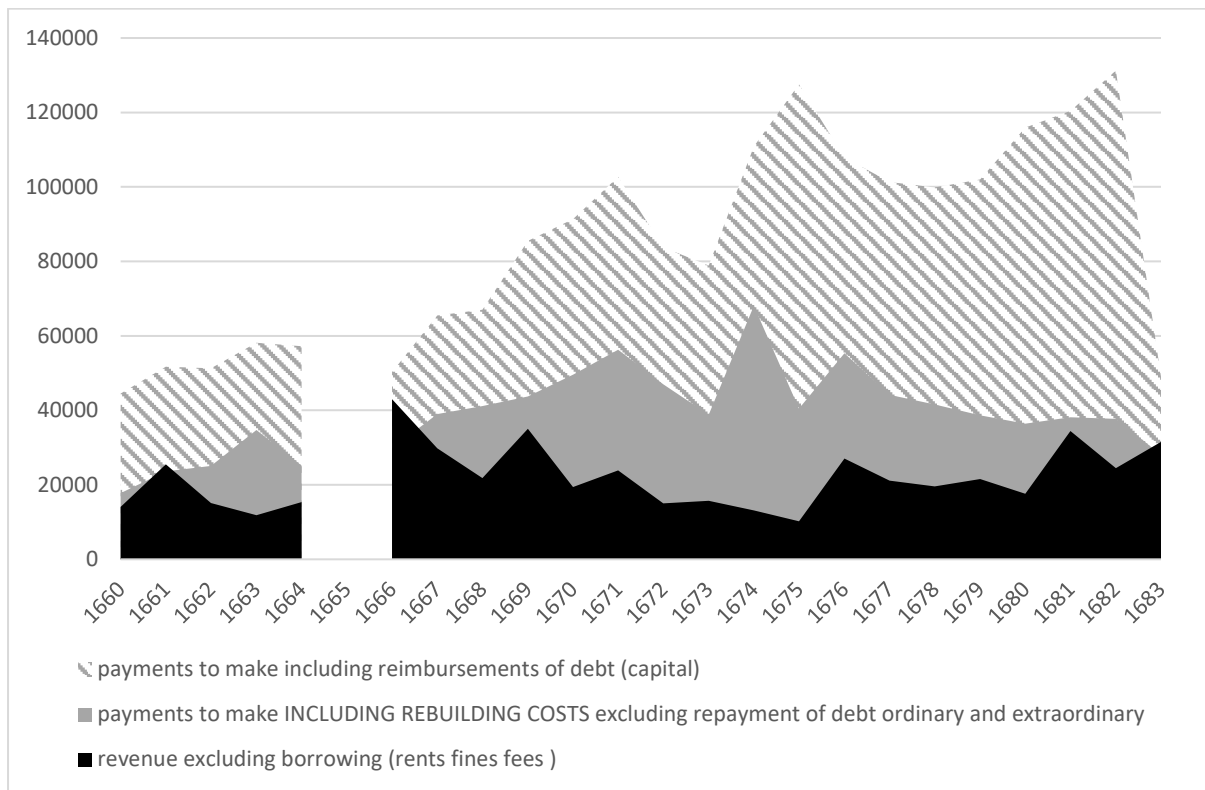
Of the close to £1m cost of reconstruction work paid for by the City, including finance charges, from 1667 to 1687, the share paid by the Coal cash fund was about 77%. The remainder was financed by (eventually defaulted) debt issued by the City. Figure 6 shows how the building expenditure compared to coal cash receipts. Given these figures, it seems that the London Corporation financed directly about 14% of the reconstruction project and, in addition, lent to the coal cash fund. We can also see that finance charges, as one might expect at 4-6%, were substantial and amounted to almost 20% of the cost of the project.

⁶⁸ Cavert *Producing Pollution* p.408

⁶⁹ COL/CHD/DM001-3

Figure 5

London Corporations cash flows – payments and revenues: 1660-1683.



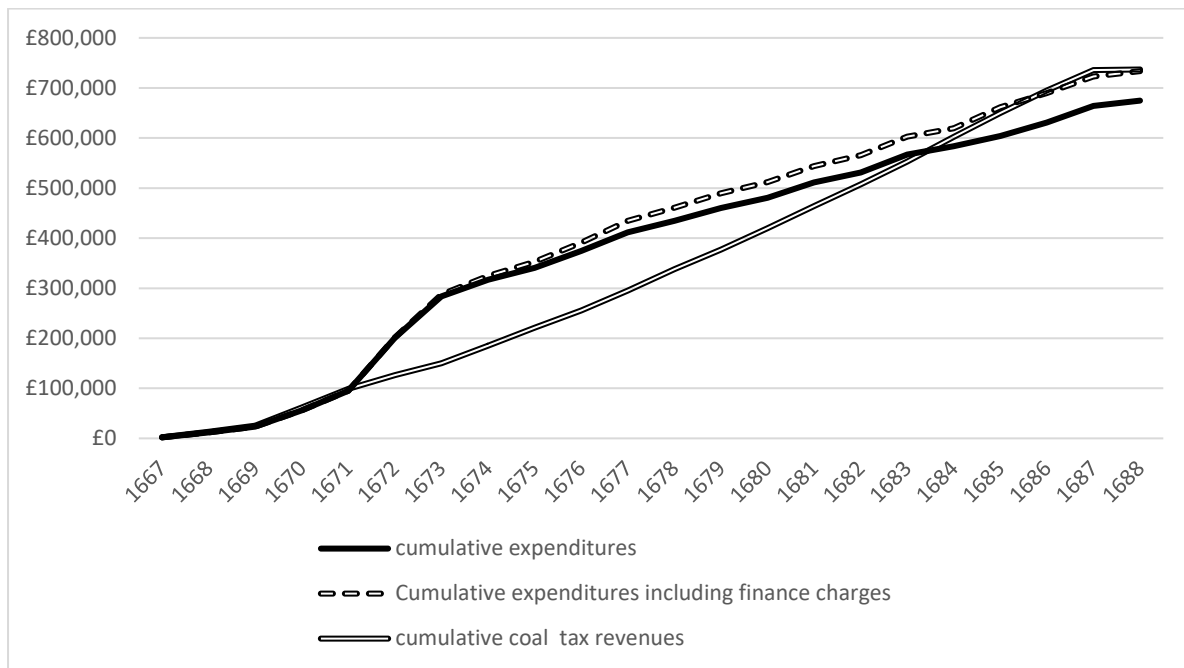
The Corporation's strategy for managing the initial shortfall before receiving coal tax was to borrow from three sources: the City's main Treasury; from the Orphans'; and directly from individuals, but the resulting costs of finance had to be paid out of tax revenues too. The coal cash fund initially borrowed monies for works from the City's main account (which was heavily dependent on the Orphans, of course) at an interest rate of 6%. The debt was secured by future Coal duties receipts. However, as we can see in figure 6, the City's advances were not sufficient, and the coal cash fund needed to turn to individual lenders. As expenditures mounted and coal duty receipts fell in 1672 and 1673, the coal cash fund had to borrow more from individuals.

The City was not new to this sort of short-term loan credit arrangement with citizens, having pursued these arrangements since at least 1633. As Christine Desan has argued, borrowing both in anticipation of tax receipts or because of unexpected shortfalls was a chronic problem in early modern Europe, one that drove financial innovation in itself.⁷⁰ The surprise, given the

⁷⁰ Desan Making Money p.246.

City's debt burden, and the ongoing nature of disagreements about the City's finances, was that they could borrow from citizens and individuals at rates below 6% on unsecured debt, especially with the security mismatch between the two types of borrowing. The interest rate that the coal cash fund paid the Corporation was 6%, secured on future Coal duties receipts. The City was borrowing from individuals at rates below 6% on unsecured debt. The Corporation stood to gain a small profit at the expense of the Coal Duty taxpayers. However, puzzlingly, this opportunity for arbitrage did not enable the Corporation to profit, which suggests the lack of an active secondary market.

Figure 6
The cumulative expenditure on reconstruction and coal duties income
coal cash fund: 1667-1688



Note: Years are fiscal years (Michaelmas to Michaelmas). Source: COL/CHD/DM/001-3.

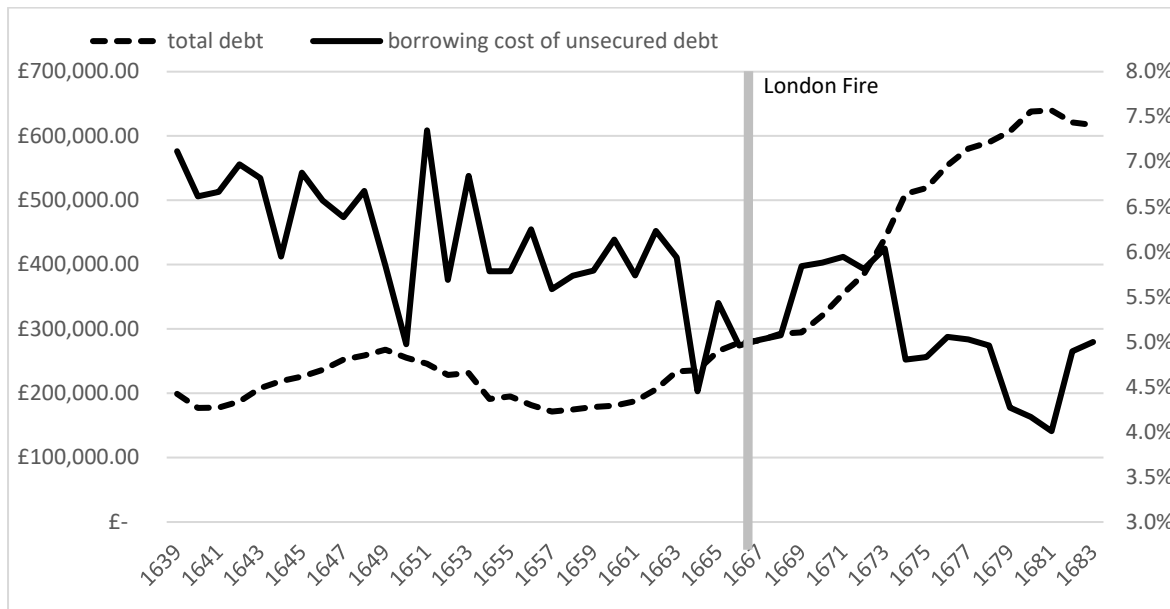
The interest rate paid to individuals on most of the loans in nominal terms was, in the vast majority of cases, from 1669-1675 5% or 6%. In nominal terms, about half of loans were extended at 5%, and 75% of what they borrowed was in weighted terms lower than 6%, but as the 1670s advanced, the average rate dropped further. In July and August 1674, the City borrowed £1700 from three individuals at 4% and 4.5% but other monies were borrowed at 6% and 5% in July also. In mid-1675, there was another loan at 4.5%, and Henry Earl of Arlington

only got 4.5% on his loan of £5,000 in mid-1677. In 1678 there were no loans at 6%, but one at 4%, so the average rate paid was 4.9%. In 1678, 1679, and 1680 the average rate was even lower. In 1680 only 4% interest was paid on most loans. Figure 7 shows the interest rate paid in the context of indebtedness and expenditure.

The declining interest rate seems to run counter to all financial theory. The Crown had defaulted, the City was known to have a problem with the Orphans' fund, there were ongoing disagreements with the King (which would lead to the quo-warranto crisis), and yet citizens including weavers, barber-surgeons, clothworkers, heiresses, and the Earl of Bolingbroke judged the City safe enough to invest at 3 or 4%.⁷¹ The data show that the London Corporation's reputation allowed it to borrow at a lower cost than the coal cash fund, which relied on an Act of Parliament to secure its debt. Borrowing costs on the unsecured debt of the London Corporation initially increased by 100 basis points from 5 percent to 6 percent and then started to decline to their lowest level ever.

Figure 7

London Corporation debt and unsecured borrowing interest rate 1639-1683



Unfortunately, the peak of the reconstruction spending and borrowing occurred during the Third Anglo-Dutch War and the default of the Crown (the Stop of the Exchequer, 1672). Thus,

⁷¹ The funds for St Mary Aldermary were recorded as being lend to the City's chamber by Anne Rogers at 3% in 1679, Colvin, St Mary, p. 27.

unlike the conventional wisdom that sovereign debt is the benchmark for borrowing costs, during this episode, the London Corporation borrowed at a discount of between 200 and 400 basis points below the king. The market was able to finance a major reconstruction during wartime and the government's default with a significant *decrease* in the cost of capital.⁷² One possibility is that this was a 'flight to quality' as investors sought a safer haven for their funds than crown lending would have offered.⁷³

Not only was the nominal interest rate the Corporation was offering substantially lower than that of the Royal Exchequer or Treasury or the usury rate, but also, as Horsefield notes, the Treasury had already had to agree to compound interest on funds lent at the end of the 1660s, increasing the effective cost of capital to the Crown.⁷⁴ Unlike treasury orders through which the Crown borrowed, the mechanism for citizens lending to the Corporation worked as the simple lodging of a deposit on a non-compounded rate of interest per annum, making a cheaper form of borrowing for the Corporation. Of note is that the coal cash fund was able to raise most of this debt from individuals during and after the financial crisis of the Stop of the Exchequer in 1672, while the Crown suspended payment of orders through 1672-6 and at one point faced interest rates of over 8%.⁷⁵ Therefore it is worth examining who lent to the Corporation to see if the relative rates between City and CCrown were a product of a different market for these two instruments.

On first observation, this seems unlikely. Treasury orders –the main assignable instrument that the Crown used to raise finance, were held by goldsmith bankers and those holding Navy, Army, Ordnance and other supply offices, and their networks.⁷⁶ The instruments that were stopped were payments for service to the notoriously late paying Crown, which had been made assignable and traded on a secondary market, intermediated by goldsmith bankers to allow the secondary market to extend credit terms further. The Corporation's instruments were different. Lenders to the Corporation were depositing funds of their savings or specie into the Corporation's coffers for a fixed term - usually six months – and received an interest rate on it. These short-term loans differed from the annuities that the Orphans' fund paid out to investors. However, there is ample evidence of other institutions across London using this simple

⁷² Nichols 'English government borrowing', pp. 83-104

⁷³ This would be a perspective for 1672, but not resolve the mismatch from the late 1670s when the crown was borrowing again.

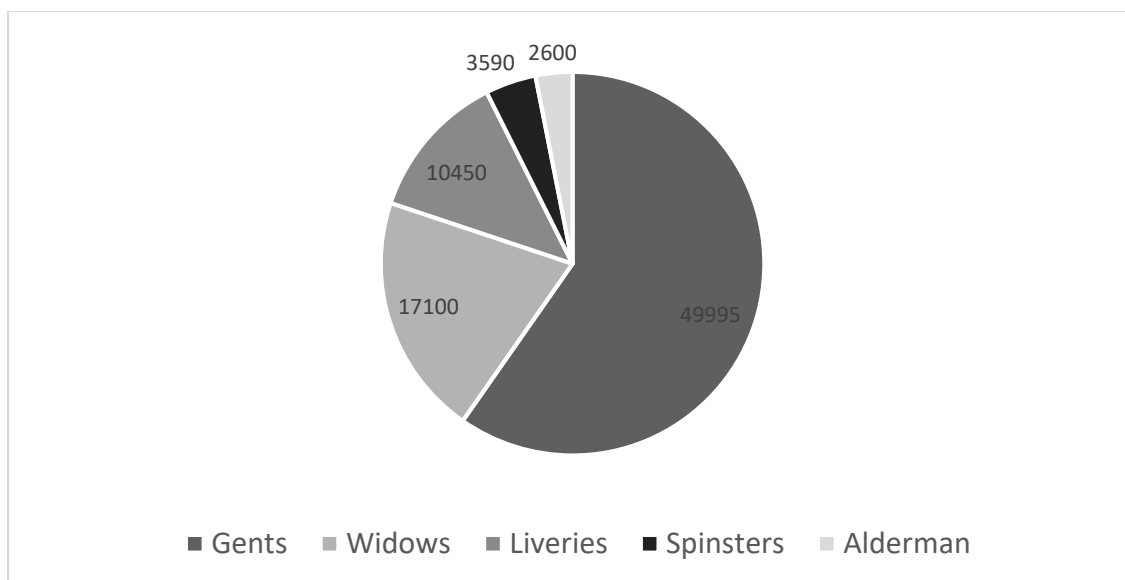
⁷⁴ Horsefield 'Stop' p.515.

⁷⁵ *ibid.*, n.35 suggests that the compounding and some loans at 8-10% pushed capital costs even higher.

⁷⁶ Richards *History* p.58

depositing instrument. St Paul's Cathedral offered 5% and 6% to depositors in the 1690s.⁷⁷ Orphans' deposits were assigned to heirs and executors upon the death of the bondholders, so although they were technically assignable, there is no direct evidence of a secondary market for those unconnected to the estates. However, there is some evidence that short-term loans to the Corporation were assigned, but no evidence of the intermediation of the goldsmith bankers. In 1661, for instance, Richard Choaregood and Robert King, assignees of William Gostwicke, collected £400 from the Corporation formerly lent by the latter. In September of that year drapers Sam Shuckford and Patrick Bamford lent £500 to the Corporation in lieu of what Luke Cordwell owed to the Chamberlain.⁷⁸ These transactions suggest that Corporation may have allowed the loans and their interest to be assigned.⁷⁹ If so, deposits may have been used as instruments to settle trade credit or interpersonal and privately traded merchant credit.

Figure 8
Composition of lenders to the coal cash fund with totals lent.



Quinn first suggested that private lending was a substitute for lending to the government in relation to the early eighteenth century. It is plausible that individuals who may have considered lending to the Crown, or those affected, and those with capital to lend generally, perceived lending to the coal cash fund a less risky substitute, but it should be directly stated that the two do not seem to have been direct substitutes because there is no evidence of a more general market in either. We can further explore this by looking at who lent to the coal cash

⁷⁷ See remittance records at LMA, CLC/313/I/B/014/MS25483/001.

⁷⁸ City records *COL/CHD/DM/001-3*. June 1661, September 1661

⁷⁹ Sussman 'The Financial Development of London in the 17th Century Revisited

fund. The number of loans contracted by the fund was almost 400 from about 300 lenders. The average loan size was £261 (£937,000 in today's relative income according to measuringworth.com), and the median loan was £150 (somewhat, but only marginally smaller than investments goldsmith bankers made into Treasury orders on behalf of their clients).⁸⁰ To put these numbers in perspective, according to King's 1688 social tables, lenders belonged to the top decile of the English income distribution, whereas those with Treasury orders were higher up the social scale with much larger capital at stake.⁸¹

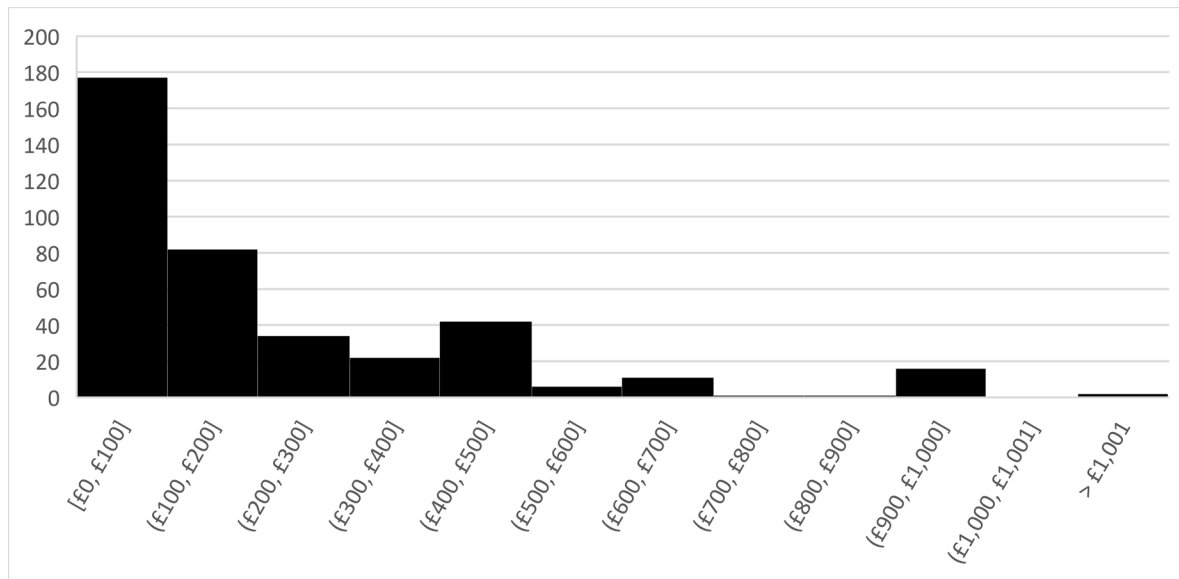
The social status of lenders is shown in Figure 8, and the distribution of loans by size is reported in Figure 9. Most of the borrowing was from people living in the City, only 15% of lenders lived outside the City, and they provided about 18% of the funds. The lenders to the Coal Cash were drawn mainly from the upper middle trading classes – the gentry, as well as widows and spinsters, who, for the most part, belonged to these classes too. Men belonging to the livery companies represented a larger share of the loans; however, corresponding to their economic standing, the average loan made by them was below the median. The loans made by the alderman who ran the City government were of the highest value. Most notably, the London Corporation chamberlain, Sir Thomas Player, lent £2,600 over several years. The data give the impression that London's citizens held ready capital and were willing to invest at the rates the Corporation offered. However, the data do not give enough evidence that Treasury orders and Corporation short term loans were substitutable, although investors in either may have also held the other instrument.

Loans to the coal cash fund did not have any covenants other than the interest rate they offered and the fact that they were guaranteed by the coal imports. Of note was that the duration of loans was not stipulated after 1675 but was usually 6 months before that. However, from the records of their repayment, we can see that the average duration of lending was 5 years.

⁸⁰ Ibid. evidence from defaulted bankers loan in 1672 that the average size of loans intermediated by bankers was similar to the loans lent to the corporation see Sussman op.cit.

⁸¹ A list of those who lost in 1672 is given by Horsefield 'Stop' table 2, p.516. see Also Arkell 'Illuminations' pp,32-69

Figure 9
Distribution of loans by size.



Interest was paid annually. Figure 10 makes it clear that in 1671/ 2, lenders risked not being paid. However, the Stop of the Exchequer had a potential benefit for the City. According to Reddaway, the Corporation used the crisis as cover for the City to transfer all of its expenditure on rebuilding to the coal dues account, not just the proportion allowed by Parliament's apportionment.⁸² According to Reddaway, this manoeuvre delayed default for 11 years (p.191) because it took expenditure away from the City's main account, releasing funds from the slower St Paul's and Church projects, and kept the debt service to revenues low. Thus, the City's relative financial strength as a place to deposit investment funds was not capitalized on by the City in 1672, rather at this point, the City loosened its financial reserve.

The cumulative distribution function (Figure 11) of the holding periods of the loans is uniform over the range from 3 months to 12 Years. The distribution of withdrawals suggests that they occurred randomly over the duration of the period. It suggests clearly that there was no specific event before 1683 that triggered withdrawals, and the default of the London Corporation was unanticipated by the lenders.

⁸² Reddaway 'Rebuilding' pp.177-192

Figure 10

Cash held by Corporation in months of expenditure:

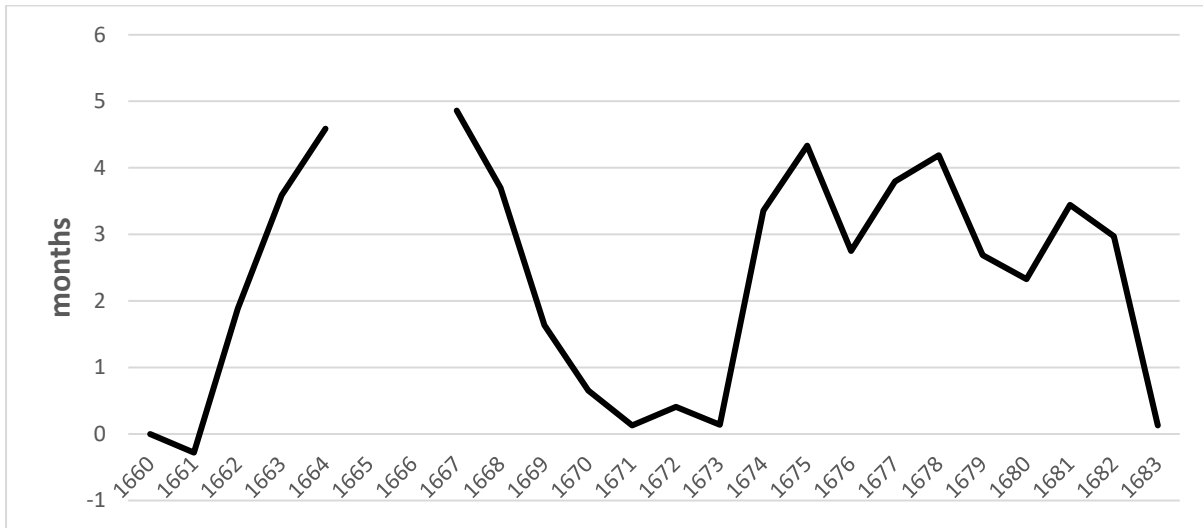
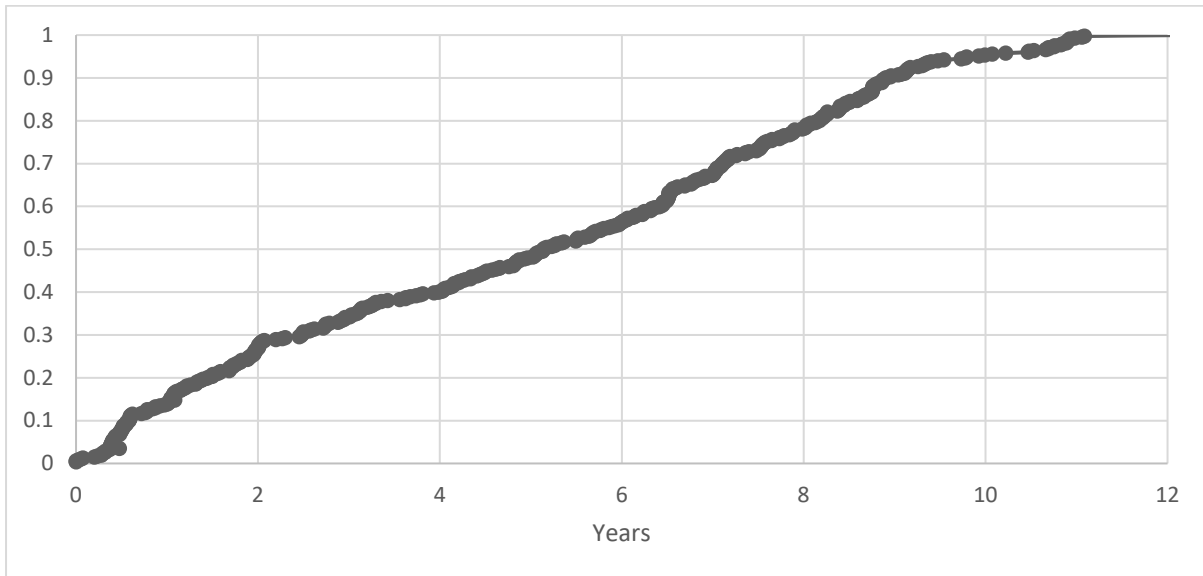


Figure 11

The cumulative distribution function of the duration of loans to the Coal Fund: 1671-1687



VI Default

The initial gap between coal tax receipts and spending by the coal cash fund was met by borrowing from the Corporation. The Corporation had funded on its own, through borrowing from individuals, a number of the immediate rebuilding projects before 1672 that were not financed by the coal cash fund. Thus, the budgetary burden of the London Corporation consisted of its direct expenditures, lending to the coal cash fund, and finance charges on the

borrowing from the public needed to cover these expenditures. The pressure on the budget peaked in 1672 and lasted until 1681 when coal tax revenues were used to start repaying the debt of the coal cash fund to the Corporation, but also critically, the City stopped borrowing from individuals to the fund. The growing political crisis and the Tory discomfort at growing Whig power in the City also led to financial disruption, but not as much as might be expected, because, incredibly, the City continued to borrow for the fund through the Exclusion Bill Parliament of 1679-80. It ceased, however, to borrow for the fund after that. As Parliamentary debates highlighted, without a charter, the Corporation would officially no longer be responsible for the debt. Probably as a result bond lending collapsed in 1680, and in 1682 the City relied on short-term finance. However, the Crown called *quo-warranto* on the Corporation and boroughs in late 1680 and early 1681, but the City-maintained interest payments until 1683.⁸³

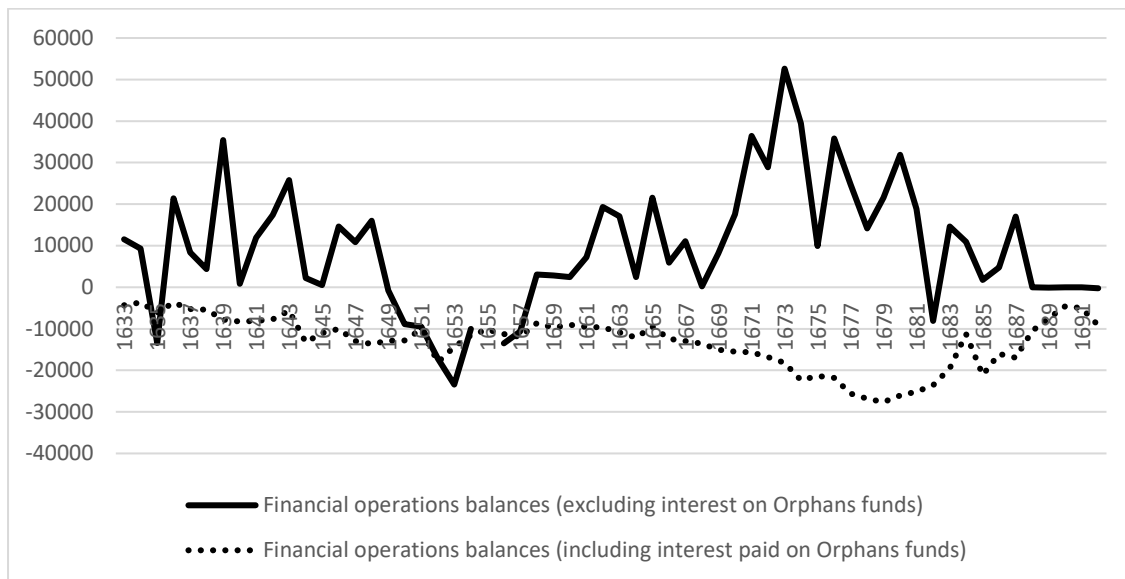
The outcome of the persistent deficits of the London Corporation caused by the expenditures related to the reconstruction of the City was a swelling debt, owed mainly to the depositors in the Orphans' fund. But we should note that the City's financial operation costs were driven by the costs of borrowing from the Orphans' fund. Owing to its cash flow problems, the coal cash fund withheld interest payment to the London Corporation from 1679 to 1684. Before 1673, the financial operation costs were mainly driven by the lower borrowing cost of the longer maturity deposits in the Orphans' fund that were of a different nature than the standard borrowing by the Corporation (Figure 12).

Because the debt service charge of the Orphans' Fund was lower, the London Corporation preferred borrowing on that account. In fact, until 1673, the secured debt commanded a small premium over the comparable unsecured debt. From 1673 onwards, the unsecured debt commanded a premium over the secured one. As the reconstruction project advanced and it became clear that expenditures overran the tax receipts that were guaranteed only until 1677, it is possible that some uncertainty over the willingness of Parliament to renew the Coal duties could have made this commitment less credible. However, the result was that the average nominal and weighted interest rate on the unsecured debt continued to fall. While it might be argued that these debt levels could have been sustainable, an inspection of two financial distress measures clearly shows that default was imminent. In hindsight, the default was writ large on the wall in 1672, yet the City maintained its strategy of financial turnover for 11 years.

⁸³ De Krey, pp. 135-139

Figure 12

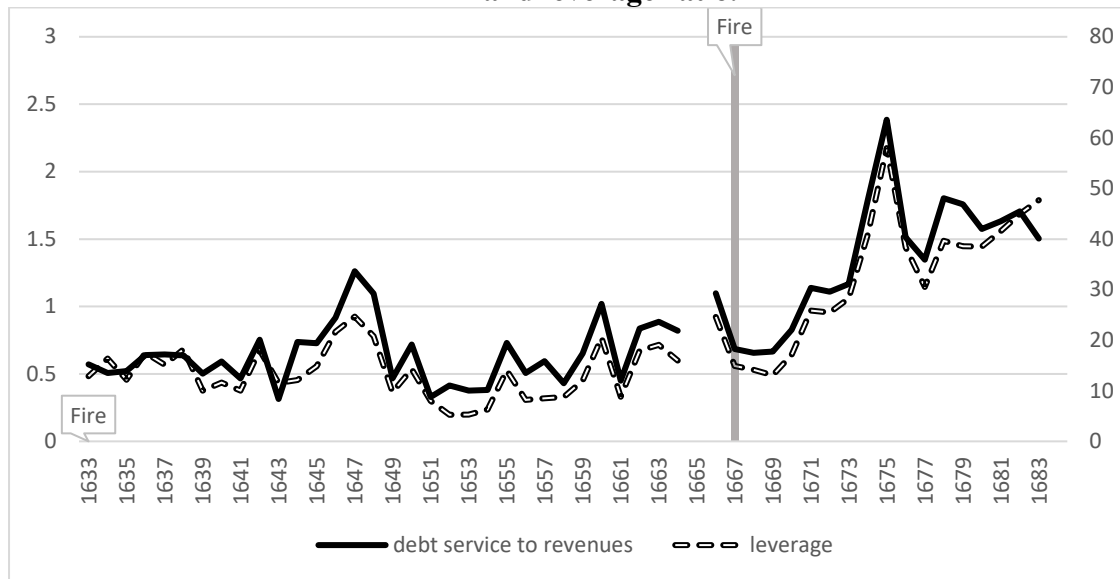
Financial operations with and without Orphans interest paid out



Was it due to the lack of transparency of the Corporation’s accounts, or was it the belief that either Crown or aldermen would not allow a default to happen? Although we can definitely confirm the former, the latter remains speculation. From 1672 onward the debt service to revenues ratio exceeded 1 and exhibited an increasing trend. Once this ratio established itself above 1, the London Corporation found itself in an unsustainable position where, even if it would have cut its expenditures to zero, it would need to borrow just to pay off interest charges. Without an increase in revenues, there was no solution to this situation other than default.

As we saw above, not only did revenues not increase, but also the liquidity constraints of the coal cash fund made things worse by withholding interest payments on its debt to the London Corporation. The result was the rise of the leverage ratio to 500% in 1683. At that point, the London Corporation suspended interest payments on its debts. Since this was not the peak of financial distress (figure 13), it suggests that the timing of default could have been affected by the *quo-warranto* in terms of the effects of the *quo-warranto* on potential investors’ perceptions of the willingness of the Crown to take over the commitment or of the aldermen to honour these commitments in the absence of a charter.

Figure 13
Financial distress measures of the London Corporation: 1633-1683: debt service costs and leverage ratio.



(Source COL/CHD/CM/0004)

VII Conclusions

The rebuilding of the City was a major reconstruction project, which through private and public investment and organisation was successfully and swiftly (even by modern standards) completed. The burden of financing reconstruction and the default of the London Corporation are a neglected topic in a burgeoning literature on early modern financial markets. This paper has sought to show that the London financial market was able to finance the Corporations commitments to this at relatively low cost. Although the period of the late seventeenth century is one where sovereigns, City-states, and others innovated with new instruments of public credit to support their strategies of borrowing, and indeed the English Crown innovated in its short term borrowing capacity, the Corporation drew on well-established instruments, private short term interest-bearing deposits, to finance the challenge of rebuilding their part of the City.⁸⁴ Although the crisis presented largely unrealised opportunities for income flows, they continued to operate a long-term unsustainable, insolvent financial system. They were not able to convert the commercial opportunities into new rental income. Given the periods' inherent instability, politically, religiously, and socially this is in many ways unsurprising, but what is striking, as we have demonstrated, is that despite the developing crises, the Corporation was able to readily tap considerable funds at declining interest rates. As the financial crisis gathered momentum, the City's cost of capital *declined*.

⁸⁴ Desan *Making Money* p.246-7.

The reconstruction of London after the Fire of 1666 placed a heavy burden on a Corporation already known to be deeply in financial trouble, so can it be said that the rebuilding caused the default? Given the problems with the Orphans' fund, the default was inevitable unless some major new income stream was found. Whilst clearly the deficit in the rebuilding funds was minor compared to that of the Orphans' and whilst clearly also the funds were available and forthcoming from lenders at advantageous rates, it is hard to avoid the conclusion that the Fire contributed substantially to the City's default in 1683. If there had been no Fire, the Corporation would not have had the disruption, extra administrative burden, reconstruction costs, and organisation, nor gaps in rental and other income. There would have been an opportunity to continue to repair the City's financial balance sheet, although whether or not the opportunity would have been taken is a different matter entirely. It could also be argued that it was not the cost of the Fire but the Corporation's failure to convert the financial opportunities presented by the rebuilding to repair its finances after it that created the default of 1683.

One can speculate on what effects the Corporation's cheap finance had on the relationship between the Crown and the Corporation and whether the Crown hoped to gain in financial credibility by ruining that of the Corporation by calling *quo-warranto* in 1681. However, what is of more notable interest is that the low rates of interest found in the London Corporations municipal debt are strikingly similar to those found in other European capitals in the 1670s. This raises the question of market integration, researched by Chilosì, Schulze, and Volkart for the Holy Roman Empire in the long run.⁸⁵ Interest rates declined across Europe in the latter half of the seventeenth century (*ibid.* pp.647-8), and so there exists the possibility that the lower than expected rates in London were an indication of market integration on an even wider geographic scale. Certainly, the rates that the Corporation was paying were comparable to commercial lending in the Dutch Republic at the same time.⁸⁶ If the rates were due to some form of market integration, the mechanism by which this was feasible is not clear.⁸⁷

Literature on the Financial Revolution in England, and the relationship between finance and development in the early modern period more generally that focuses on 'commitment' and sovereigns overlooks two persistent and important financial phenomena of the early modern

⁸⁵ Chilosì, Schulze, and Volkart, 'Benefits of Empire'

⁸⁶ Gelderblom and Jonker, 'Completing a Financial Revolution', p.663.

⁸⁷ For further discussion on interest rates convergence see Neal *Rise of Financial Capitalism* pp.44-61.

period: projects and municipalities. The City of London, after the Great Fire, demonstrates amply that commitment and reputation were well established and facilitated the workings of financial markets and credit instruments and investment way before any constitutional revolution, glorious or otherwise, and show that perceptions of interest rates and risk based on the modern financial system are of limited use when applied to the early modern period. The story supports a view that investors evaluate the chances of getting paid back over institutional settings.⁸⁸ The Corporation, until default, always paid back the money borrowed – in that sense, it established a reputation based on repayment rather than on commitment mechanisms or good governance. Not only did the City benefit from a low rate of interest, at odds with established institutional narratives about the Glorious Revolution – but also they managed risk and reserves in a way counter-intuitive to modern financial management. Although it is unclear what caused the City’s lack of capacity to manage project finance adequately, despite investors being ready and liquid, and long term (coal) income forthcoming. The City’s financial position at the Restoration was desperate. That the Great Fire did not cause immediate default was due to the willingness of ready capital to lend to the Corporation at low cost. However, rebuilding assisted in rendering the Corporation insolvent.

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⁸⁸ See Sussman and Yafeh ‘Institutional reforms, financial development and sovereign debt’pp. 906–935

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