DISCUSSION PAPER SERIES

DP19267

"DORMANT SECURITIES": IMPERIAL GUARANTEES FOR COLONIAL LOANS, 1842-1934

Rui Esteves and Ali Coskun Tuncer

ECONOMIC HISTORY, ASSET PRICING AND INTERNATIONAL LENDING AND SOVEREIGN DEBT

CEPR

ISSN 0265-8003

“DORMANT SECURITIES”: IMPERIAL GUARANTEES FOR COLONIAL LOANS, 1842-1934

Rui Esteves and Ali Coskun Tuncer

Discussion Paper DP19267
Published 19 July 2024
Submitted 09 July 2024

Centre for Economic Policy Research
33 Great Sutton Street, London EC1V 0DX, UK
Tel: +44 (0)20 7183 8801
www.cepr.org

“DORMANT SECURITIES”: IMPERIAL GUARANTEES FOR COLONIAL LOANS, 1842-1934

Abstract

Contemporaries and historians agree that British colonies did not borrow on their own credit but on imperial fiat. We explore the history of colonial bonds explicitly guaranteed by Britain to qualify this assertion. We find that markets priced guarantees above other colonial bonds and that colonial governments lobbied for them. The introduction of other regulatory enhancements reduced the value of guarantees in the late 19th century, but it recovered in the interwar. British authorities were ambivalent about guarantees—worrying about creating moral hazard while using guarantees to lower the costs of developmental and strategic projects in the colonies.

JEL Classification: F54, H81, N20

Keywords: Loan guarantees

Rui Esteves - rui.esteves@graduateinstitute.ch
Geneva Graduate Institute and CEPR

Ali Coskun Tuncer - a.tuncer@ucl.ac.uk
UCL

Acknowledgements
The authors thank Leigh Gardner, Gabriel Mesevage, Christoph Trebesch and participants at the meetings of the Economic History Society, the Economic History Association and the workshop on Markets and Policy in History organized by the ECONtribute project at the University of Bonn. The authors thank Matthieu Chavaz and Marc Flandreau for sharing data. The usual disclaimer applies. The authors gratefully acknowledge funding from the Swiss National Science Foundation Scientific Exchange Grant IZSEZ0_198145.

“Dormant securities”: Imperial guarantees for colonial loans, 1842-1934

Rui Esteves, Geneva Graduate Institute and CEPR

Ali Coşkun Tunçer, UCL

1. Introduction

At the height of European imperialism, the financial relations between imperial powers and their colonies were not uniform. Some colonies enjoyed a considerable degree of political and financial autonomy; others depended entirely on the fiat of the imperial government. Colonies received grants or loans from the imperial power or floated securities in European stock markets. Contemporaries and historians agree that colonies did not borrow on their own credit (Accominotti et al. 2011, Sunderland 2004, Degive and Oosterlinck 2021).

Despite this, Britain created a distinct category of ‘guaranteed loans’ for some of its colonies (Farr 1955, Attard 2007 and 2012, Sunderland 2004 and 2007).[1] The first guaranteed loan for a colony was approved in 1842 by the British government for Canada and was followed by 24 others over the span of a century. An explicit guarantee appears redundant if colonial bonds were an implicit responsibility of the imperial government, a point often made by contemporaries (Clarke 1879; Burdett 1900).

The literature on the determinants of colonial borrowing costs in the British Empire does not offer an explanation for guaranteed colonial bonds. By assuming that British rule practically meant an implicit “no-default guarantee” (Accominotti et al. 2011, Ferguson and Schularick 2006, Degive and Oosterlinck 2021), authors have found that colonial bonds were priced solely on their liquidity (Alquist 2010, Chavaz and Flandreau 2017). This literature highlights the importance of the 1877 and the 1900 Colonial Stock Acts. These legal milestones improved the liquidity of colonial assets by allowing the inscription of colonial bonds and their inclusion in the trustees’ list of secure investments. In this paper, we question the assumption of a blanket imperial fiat. In particular, if this assumption were true, guaranteed and non-guaranteed bonds issued by the same colony would be priced similarly, a hypothesis that we test in the following sections.

We explore a century of financial relations with colonies bookended by the first colonial guaranteed bonds of the 1840s and the interwar. However, we leave out British India from our investigation as Indian bonds formed a category apart. They could only be issued with the approval of the British Parliament, were managed by the Bank of England and were all covered by a full British guarantee.[2] Given these characteristics, they are beyond the scope of this paper.

[1] We limit the scope of this article to British colonies. France was another imperial power that relied on guaranteed loans for some of its colonies (Huillery 2014). As in the British case, guarantees were initially granted piecemeal to French colonies, but the French government extended the guarantee to all new colonial issues from 1931 (Messmer 1939). Moreover, big creditor countries before 1914 also issued guaranteed bonds also for other sovereign states (Esteves and Tunçer 2016).

[2] This leaves us with no counterfactual to test the value of the guarantee against. Indian bonds were also explicitly excluded from the 1877 Colonial Stocks Act (Sunderland 2013).

We address two questions in this paper. The first question concerns the motivations of the British government to grant these guarantees. The process was public and subject to parliamentary scrutiny, providing insight into the political and financial tradeoffs involved. In the background was the clear understanding that guarantees were a direct charge to the British taxpayer. Therefore, the financial orthodoxy of the Treasury often clashed with the spending pressure from the Colonial Office for 'colonial development.' Moreover, some British officials worried that guaranteed bonds might turn into 'dormant securities' which could later sour the relations between Britain and the colonies.

Second, we test whether markets priced these guarantees. We approach this question from three angles. For colonies with guaranteed bonds, we compare them to non-guaranteed bonds of the same colony and compute spreads between them. In this way, we eliminate colony-specific factors such as the distinction between self-governing and crown colonies. We then test whether markets perceived colonies as financially autonomous by using panel VARs. Finally, we use a large panel dataset to parse between the guarantee premium and other bond properties, such as their liquidity and some regulatory enhancements.

We document that on different occasions, colonial governments lobbied for some or all three regulatory enhancements (guarantees, inscription, and trustee status), suggesting they were partly substitutable ways of making colonial securities popular with British investors. We find that markets priced all enhancements and that guarantees were especially important in the earlier part of our period. This guarantee premium, however, declined over time and was close to zero by the start of the twentieth century. The premium reemerged, however, in the interwar, as the composition of colonies receiving guarantees changed. Prior to the War guarantees were almost exclusively granted to self-governing colonies, whereas all guarantees in the interwar were given to bonds issued by crown colonies and by the newly acquired mandates.

The interwar was a transition period when the imperial guarantee system gained a more developmental focus. During this period, British protectorates and mandated territories in East Africa and the Middle East were granted guarantees to fund irrigation and infrastructure projects, as well as to tackle fiscal crises and natural disasters. This orientation became even more pronounced after World War II with the passing of the Colonial Loans Acts of 1949 and 1952 which enabled the Treasury to guarantee loans floated by the World Bank to British colonies. These developments are in line with the long-term patterns in international official lending which shifted towards developing countries and developmental projects after the War (Horn et al. 2020).

In the next section, we establish the extent of colonial guarantees and outline their function and motivations. We also explore the evolution of this system as a financial technology and put forward a periodization. In section 3, we develop several methods to test the relevance of colonial guarantees and other enhancements for each colony and their relation to the imperial fiat. Section 4 extends the scope of this analysis by comparing the effect of guarantees, inscription and the trustee list across colonies and time periods. Section 5 concludes.

2. Imperial guarantees for colonial loans, 1842-1934

The characteristics of the imperial guarantee system evolved considerably over more than a century. In this section, we outline the key milestones and identify the motivations behind the granting of guarantees by the British government. The guarantee system differed from "colonial advances," which were grants

transferred by London to colonies. Colonial loans were raised from the public by the colonies themselves, although access to borrowing differed markedly between crown colonies and self-governing colonies as only the latter had financial autonomy (Accominotti et al. 2011, Sunderland 2004). The procedure for considering a guarantee was subject to parliamentary scrutiny and approval. The debate on each guarantee act therefore provided an opportunity for opponents and proponents to state their case. The arguments presented showed that the financial interests of the Treasury and the political and strategic aims of the Colonial Office did not always overlap (Farr 1955).

First, there was a moral hazard concern. If the colony in question failed to pay back, the guarantee had to be redeemed by the British taxpayer and this might create perverse incentives for colonial overborrowing.[3] The Treasury also contended that guarantees should be granted cautiously, as they created new commitments and could potentially increase the overall cost of borrowing for the UK (Constantine 1984). Then there was the related issue that guarantees could turn into financial entanglements that would sour the relations between Britain and the colonies. During the debate for the 1857 Guarantee Act for New Zealand, several MPs alerted to the danger of creating "dormant securities" since "the relations between the mother country and the colonies cannot be placed on a more insecure basis than the creditor and debtor."[4] If Britain wanted to help its colonies, it had better do it through grants rather than loans. A final objection to guarantees was on a cost-benefit basis. On several occasions, it was suggested that direct loans from Britain to the colonies would be cheaper to fund by the UK government itself than letting colonies borrow on their own in the market.

From the perspective of the colonies, the situation was not always straightforward either: in certain cases, a guarantee was a signal of imperial support that eased access to the London market, whereas in others it could signal low fiscal capacity. Moreover, guarantee acts often included conditions that restricted the autonomy of colonial governments.

The first guaranteed loans to Canada and Jamaica were approved in 1842 and 1854, respectively. When introducing the enabling act for Canada in the British parliament, the government used the 1833 Greek guaranteed loan as a precedent. The Jamaican loan inaugurated the practice of using the guarantees as a conditionality tool to force reforms in the colonies. In this case, the guarantee indicated a problem with the credit of the colony, which London sought to remedy with a number of enforced fiscal reforms.

Between 1857 and 1873, the Palmerston and Gladstone governments used guarantees as an instrument of British colonial policy. The guaranteed loans offered to New Zealand were aimed at addressing the overborrowing of New Zealand provinces in London and came with the condition of London's approval of all future provincial borrowing. This resulted in the abolition of the provincial borrowing system (Attard 2007, 2012). Canadian guaranteed loans were explicitly linked to the unification of British North America by promoting the construction of railways and fortifications. Successive British governments duly emphasized the attractive nature of guarantees for investors, the imperial interests they

[3] The memory of the Greek loan of 1833, which had been guaranteed by the UK, France and Russia to support Greek independence from the Ottoman Empire, was still fresh among British politicians. The Greek government quickly defaulted on this loan and the UK ended up having to deliver on the guarantee (Esteves and Tunçer 2016).

[4] "Second reading – New Zealand (Guarantee of Loan)." House of Lords Hansard Sessional Papers, Third Series, Volume 176, Page Column: 1452-1535.

furthered, and the role of these loans in bringing self-governing colonies closer to self-reliance.[5] Nevertheless, these loans were authorized by gradually declining majorities, as more MPs were persuaded of the dangers of the guarantee system (Farr 1955).

Over the next two decades (1873-1892), the British parliament did not authorize new guarantees for colonial loans.[6] Despite this pause, an important piece of legislation was introduced in this period that improved the liquidity of colonial bonds listed in London. The 1877 Colonial Stocks Act allowed colonial bonds to be inscribed as stock at the Bank of England, a useful enhancement for London-based investors in these bonds (Chavaz and Flandreau 2017). Due to the difficulty in passing guarantees through parliament, the Treasury considered other options such as providing advances and grants to colonies, offering low-interest development loans or creating 'Colonial Consols.' Neville Chamberlain introduced the project of colonial consols in 1895 as a form of colonial debt mutualization. Rather than having colonies issuing bonds on their own, colonial consols would be issued by the British government. This would guarantee lower borrowing costs, which the government could pass on by lending directly to the colonies. As a check against overborrowing, the loans would carry an interest rate proportional to the colonies' fiscal space (Jessop 1976, Chavaz and Flandreau 2017).[7]

After this pause, three guaranteed loans were authorized for Mauritius, Transvaal, and Sudan, which represented a shift in geographical focus and also in motivation. The guarantee granted to Mauritius in 1892 involved a modest sum in response to a devastating hurricane. In contrast, the two loans authorized for Transvaal in 1903 and 1907 totaled £40 million, the largest sum guaranteed until then. The Sudan loan of 1913 was earmarked to fund a large irrigation project in the Gezireh plain, but the start of the war interrupted its flotation. In this same period, another important regulatory innovation, the Colonial Stock Act of 1900, allowed the inclusion of colonial bonds in the trustee list of safe investments, under certain conditions. As we discuss in the next section, these regulatory enhancements created a tiered system of colonial borrowing where ordinary colonial loans constituted the base layer, followed by inscribed colonial stocks and colonial bonds with trustee status. Finally, guaranteed colonial bonds were in a class of their own, having been included in the trustee list since 1860.

The years 1919-34 marked another transition when the imperial guarantee system gained a more developmental focus. During the war years, the Treasury restricted access to the London market, to preserve financial resources for critical military needs, and encouraged colonies to raise loans locally. In 1919, the newly formed Colonial Development Committee concluded that the limited availability of Treasury support for the colonies would persist after the war and recommended a more ambitious use of guarantees for colonial loans as an alternative. This recommendation was gradually implemented through a series of acts during the interwar period (Constantine 1984). Another significant measure was the Colonial Development Act of 1929, which aimed at "promoting commerce with and industry in colonies"

[5] "Canada Railway Loan – Committee." House of Commons Hansard Sessional Papers, Third Series, Volume 186, Page Column: 752-804.

[6] Egypt received a guaranteed loan in 1885 (Esteves and Tunçer 2016). Egypt, however, was not a part of the formal empire. It was a de jure part of the Ottoman Empire and some of the Egyptian financial institutions were jointly managed by France and the UK.

[7] Readers will recognize the similarities with some of the projects for debt mutualization in Europe (Boonstra 1991, Muellbauer 2013). As in the case of Eurobonds, Chamberlain's plan was ultimately defeated on fiscal concerns.

through various infrastructure projects. This act established a 'Colonial Development Fund,' empowering the Treasury to provide capital grants and loans, covering the interest on any loans raised by a colony for a ten-year period. The second section of this Act amended the Colonial Stock Acts and extended their conditions to protectorates and mandated territories (Drummond 1972). This included Tanganyika and Nyasaland in East Africa, and Palestine and Sudan in the Middle East that could now access guarantees for loans to invest in irrigation and infrastructure projects.

Overall, from 1842 to 1934, Britain authorized 25 colonial guarantees worth c. £143 million (see Figure 1). Throughout the whole period, guarantees were granted to both self-governing and crown colonies.[8] World War I marks a turning point in that prior to the War, self-governing colonies absorbed the vast majority of guarantees, whereas only crown colonies received guarantees afterwards.

Benchmarking colonial guarantees against other types of revenue transfers illustrates the scale of the imperial guarantee system. Before World War II, direct advances made by the British government to the colonies amounted to c. £31 million, though their relative importance declined since the 1910s (Figure 2). Guarantees were partly driven by the costly nature of colonial development projects that required raising loans in the London market instead of direct Treasury support. They were offered for multiple reasons that were stated in relevant acts of Parliament (Figure 3). Before the 1910s, the main reasons were the reinforcement of imperial frontiers or other military and strategic factors. Infrastructure building and public works became the driving force behind imperial guarantees thereafter. The only exception was the Newfoundland loan of 1933, which was raised to forestall a fiscal crisis in the then-autonomous colony.

Colonial guarantees resumed after 1952 under a new framework, but we limit the scope of our analysis up to 1934 because of the structural differences after the war. The war disrupted British plans to finance development projects in colonies. Post-war, the Colonial Development and Welfare Acts of 1945-63 increased financial aid to colonies, and the Colonial Loans Act of 1949-52 allowed colonies to borrow from the newly created International Bank for Reconstruction and Development (IBRD). Since colonies were not IBRD members, Britain guaranteed their loans. The first IBRD loan guaranteed by Britain was granted to Southern Rhodesia in 1952, followed 15 others (Wicker 1958, ODI 1964, Krozewski 1996 and 2014).[9]

[8] We distinguish these two groups of colonies from a contemporary bondholder perspective without going into the details of their legal relations with London, which showed variation. According to Burdett (1900: 1-2), a Crown Colony was a colony "possessing a government acting on the responsibility of the imperial Government". According to this perspective, 27 out of 38 colonial dependencies were considered Crown Colonies: Bahamas, Barbados, Basutoland, Bermuda, British Guiana, British Honduras, Ceylon, Falkland Islands, Fiji, Gambia, Gibraltar, Gold Coast, Grenada, Hong Kong, Jamaica, Lagos, Leeward Islands, Malta, Mauritius, St Helena, St Lucia, St Vincent, Seychelles, Sierra Leone, Straits Settlements, Trinidad and Tobago, and Turks Islands. Some of these colonies were in fact "protectorates" overseen by a High Commissioner appointed by the Foreign Office. The remaining 11 colonies were considered "responsible" or self-governing colonies: Canada, Cape of Good Hope, Natal, New South Wales, New Zealand. Newfoundland, Queensland, South Australia, Tasmania, Victoria, Western Australia. For the interwar period, we add to this list the mandated territories. For Britain, these consisted of territories in the Middle East and East Africa previously controlled by the Ottoman Empire and Germany: Palestine, Iraq, Tanganyika, Cameroon, Togoland and Nauru which did not have self-governing status.

[9] This picture does not fully represent the entire range of funding methods used for the development of colonies during this period. Besides non-aid finance, such as public issues raised by Crown Agents and Exchequer loans

In the next section, we use evidence from the London capital market to price the value attached to colonial guarantees as well as to distinguish them from other regulatory enhancements attached to colonial bonds, namely inscription and trustee status.

3. Within-Colony Analysis

This section focuses on measurement. We develop a methodology to test whether markets priced the explicit guarantees of colonial bonds and, if so, how large this premium was. Because the pricing of bonds is subject to many determinants, we adopt a short-term high-frequency approach to data collection. We also distinguish the guarantee premium from the pricing of other legal enhancements that were progressively extended to colonial bond issues, namely inscription in 1877 and the trustee status in 1900. In a third step, we test whether markets priced guaranteed bonds separately from other colonial issues. It is often mentioned that colonies borrowed on the imperial fiat, but it is unclear whether markets treated all colonial bonds as implicitly guaranteed by Britain, including those which were not explicitly so.

3.1 Bonds Spreads: the Guarantee Premium

There are several challenges to quantifying the financial markets' reaction to new information about the underlying value of a debt security, including a change in its covenant or regulatory framework. A long literature on event studies has finessed questions such as the length of the observation window, the data frequency or the counterfactual returns to compare the asset of interest against (Kothari and Warner 2007). In this section, we are also worried about mixing our measure with the effects of other bond characteristics. Ideally, we would like to be able to measure the premium enjoyed by an explicitly guaranteed colonial bond over time as a simple spread between its yield (y_{it}) and that of other non-guaranteed bond issues (y_{jt}):

$$s_{ijt} = y_{jt} - y_{it} = r_t + \ell_t \tag{1}$$

which, again in an ideal situation, could be decomposed into a risk component (r_t) and a liquidity component (ℓ_t) independent of the pair (i, j) of bonds being compared.

The problem is that, unlike common stocks, bond covenants varied considerably in the period we cover, as well as the precise legal and tax treatment applied to them. A way of accounting for these would be to run models with a set of controls corresponding to all relevant observable characteristics of each bond issue i of colony k:

$$y_{ikt} = \alpha + \delta_k + \gamma g_{it} + \beta' X_{ikt} + \varepsilon_{ikt} \tag{2}$$

where we highlight our coefficient of interest γ on a binary variable for the presence of an explicit guarantee ($g_{it} = 1$) and allow for unobservables through colony fixed effects. This is a panel setup, which we will explore in the next section. In this section, we take instead a micro-level approach. In order to shut down all sources of extraneous variation in bond prices, we focus on within-colony comparisons. That is, we will attempt to measure the guarantee premium of bonds by comparing them with non-guaranteed bonds of the same colony. Moreover, we will also restrict our attention to bonds of similar maturity, coupon and other characteristics (such as currency and collateral). This is equivalent to subtracting y_{ikt}

colonies benefited from inter-colonial loans, advances from the Joint Colonial Fund, local loans, and other forms of UK government aid (Sunderland 2007).

from the yield of another bond j of the same colony with identical vector of controls $X_{jkt} = X_{ikt}$ but without a guarantee:[10]

$$s_{ijkt} = y_{ikt} - y_{jkt} = \gamma \quad (3)$$

To apply this approach, we screened the list of all issues of each colony to find comparable bonds. We then converted the prices of bonds quoted in the LSE into standard measures of yields. Here too the choice of concept is not immaterial. Simple yields are easy to compute and are a reasonable approximation of the yields to maturity (YTMs) for long-dated bonds, but less so for bonds close to maturity. Similarly, bonds with embedded call options were priced according to the expected exercise of the call (for details see Esteves and Tunçer 2016, Flandreau and Legentilhomme 2022). Despite these differences, we will see that our qualitative results carry through for all yield concepts. Finally, in this section we focus on a relatively short horizon (up to one year after issue) but with a relatively high frequency for data collection. In most cases, we collected weekly bond prices from the official LSE price lists (the *Course of the Exchange* and the *Stock Exchange Daily Official List*), except where the methodology required daily data. We leave the discussion of longer-term lower-frequency data in section 4.

The main downside of this matching approach is that it restricts attention to the subsample of guaranteed bonds for which we can find comparable non-guaranteed bonds issued by the same colony and listed at the same time as the guaranteed issues. In some cases, we could not match a guaranteed issue for lack of contemporary non-guaranteed bonds to compare it to. In the case of India, since all bonds listed in London were explicitly guaranteed by Britain there were also no comparator bonds to compute the guarantee premium. In other cases, the guaranteed bonds were not listed in London or had no prices marked there, such as the New Zealand 4% guaranteed loan of 1870. Out of the 15 colonial bonds guaranteed by Britain prior to World War I, we were able to compute the guarantee premium for only 4 Canadian bonds plus the 1892 Mauritian bond.[11] Table 1 lists these bonds and eight other non-guaranteed bonds we compared them to.[12]

The table spans half a century between the first guaranteed colonial bond, granted to the then Province of Canada in 1842 and the 1892 bond for Mauritius. We collected the data on the prices of the 12 bonds with weekly frequency during the first year since the issue of each guaranteed bond. The table lists the summary statistics of their simple yields and of the 'turn' between their closing quotations as marked in the LSE pricing list. The 'turn' has been interpreted as a measure of liquidity akin to the bid-asks in a dealers market (see Chavaz and Flandreau 2017 and section 4). We report the summary statistics of the spreads between the simple yields of guaranteed and non-guaranteed bonds in Table 2. Notwithstanding the caveats of using simple yields, we can already make two inferences from the table.

The first is that imperial guarantees were indeed priced in by the market, at least during the 19th century. Starting in the region of 130 to 150 basis points (bips), the spread between non-guaranteed and guaranteed bonds fell to 100 bips or below from the late 1870s. This was by no means a small premium.

[10] We defer the decomposition of γ into the risk and liquidity components to subsection 4.2.

[11] We were not able to match any guaranteed bond issued in the interwar to non-guaranteed bonds listed by the same colonies.

[12] The naming of these bonds was not always consistent in the sources and the titles on Table 1 are simplified. For the full bond titles see Appendix A.

If we take the average price and coupon of British colonial bonds at the time, it corresponds to a 35% increase in bond prices. The fall in size coincides temporarily with the first major regulatory change affecting colonial bonds listed in London—the 1877 Colonial Stocks Act. It is tempting to see the reduction as caused by the repricing of colonial bonds after they gained access to inscription, but as the pairwise comparisons in Table 2 show, there is no significant difference in the spread when the comparator bonds are inscribed or not. We return to this question in the next subsection.

A second inference is that the size of the spread appears to depend on the difference in coupons between the guaranteed and non-guaranteed bonds. All else equal, when we compare bonds with the same coupon (as in the case of the 4% Guaranteed 1913 Canadian bond), the measured spreads are smaller than when we compare the yields of guaranteed bonds to the yields of comparable bonds with higher coupons. As is well known in the literature, bonds of higher coupons can include an expectation of conversion into lower coupon bonds that biases their simple yields up (Klovland 1994, Flandreau and Zumer 2004). For this reason, we should take the spreads in Table 2 as an upper bound of the true guarantee premia.

A different question is whether the guarantee premium was persistent. This matters for interpretation since relatively short-lived premia could be due to temporary dislocations in the market of colonial bonds, rather than the pricing of a specific enhancement by the market.[13] To investigate this, we compiled longer-term monthly data for the same bonds of Table 1. As we are interested here in the persistence of the guarantee premium, as opposed to the short-term variation, we compute five-years averages. Table 3 lists the averages and standard deviation of spreads in five-year periods, and Figure 4 plots the averages and the implied 95% confidence intervals. Over the course of four decades, the guarantee premium started at a high level of 100 bips only to finish virtually eliminated by the turn of the century. Even though there are differences in spreads depending on the yield concept used, the tenor of the results is unchanged.

Nevertheless, this evidence is dominated by Canada, one of the oldest self-governing colonies and one of the most successful ones at raising loans in London. This was in no small way due to the economic potential of the country as well as to its fiscal conservatism (Bordo and Redish 2001, Davis and Gallman 2001). Whereas the privilege of an explicit imperial guarantee was extremely valuable in the early years after Confederation, its importance receded as the Dominium grew economically and with it the fiscal capacity of the colonial government. This then raises the potential for selection bias. Not all colonies were equally endowed or successful, and for the less fortunate the privilege of an explicit imperial guarantee was likely more valuable for longer. We will investigate this question in section 4. Before that, we test how our measure of the guarantee premium interacted with the two other main regulatory enhancements acquired by colonial bonds in the late 19th century—inscription and inclusion in the trustee list.

[13] A possibility would be the well-known spread between on- and off-the-run bonds, which is driven by the greater liquidity of more recent bond vintages (Amihud and Mendelson 1986). As we measure the guarantee premium from the date of issue of the guaranteed bonds, some fraction of the spread between guaranteed and non-guaranteed colonial bonds could be due to the earlier vintage of the former.

3.2 Regulatory Enhancements

During our sample period, the British government changed the regulation of colonial bonds in an attempt to increase their popularity among British investors. The main prewar regulatory shocks were the two Colonial Stock Acts of 1877 and 1900. The first allowed the inscription of colonial bonds, which involved potential savings in transaction costs and gains in liquidity for the Britain-based investor as described in Chavaz and Flandreau (2017).[14] The second Act allowed inscribed colonial bonds to be included in the trustee list, under certain conditions. Tantamount to a list of safe assets, the trustee list was published by the British government since 1859 and progressively expanded to include colonial bonds from 1900.

The creation of such a list can be traced back to the South Sea Bubble, which led to the loss of many trust funds. Prior to 1859, English law allowed trusts to invest only in 3 percent consols.[15] As financial markets expanded and new types of assets emerged, many of which outperformed the consols, there was pressure from trust beneficiaries to allow investment in assets with higher income potential (Stebbings 2001). In response, the 1859 Act extended the list to all British government securities, the stock of the Bank of England, and Irish and East India stocks. Over time, the list was extended to other classes of securities (Vaizey 1890, Ellissen 1904).[16] The expectation was that by recognizing colonial stocks as trustee investments, the 1900 Colonial Stocks Act would increase their demand and lower their yields.[17] Initially, the Treasury wanted to include only self-governing colonies, but later reversed this position out of concern that it could limit the ability of self-governing colonies to borrow on their own and increase their dependency on the Treasury. It also feared that existing crown colony stocks, if excluded, would be heavily discounted leading to further complications (Kesner 1977, Jessop 1976).

The final version of the Act did not discriminate between colonies but restricted access to trustee status to inscribed bonds, i.e. those that had become inscribed thanks to the 1877 Act. On top of this, admission to the list was subject to a degree of conditionality, which was not entirely welcomed by colonial governments (Chavaz and Flandreau 2017). New bond issues could only be included in the list if the colonial governments demonstrated that they could fund them without diluting the claims of holders of previous bonds. Moreover, any changes in the surety and conditions of colonial bonds could result in their

[14] More specifically, the 1877 Act included three main advantages for the holders of inscribed colonial stock. First, it exempted the transactions in these stocks from stamp duty. Second, it allowed colonial bonds to be 'registered' or 'transferable by deed' at the Bank of England. This facilitated the trading in these stocks by UK-based investors who, no longer needed to hold physical bonds or pay a fee to deposit them with intermediaries in London. Transfers by deed also dispensed with the need of attending in person to buy or sell the stock. Finally, the Act also allowed colonies to convert their debt securities into stock certificates to bearer, which were favored by bankers that traded them more often than retail investors. See Withers (1910) and the article "The Transfer of Colonial Stock" in *The Economist*, 21 July 1877, p. 850.

[15] This default rule only applied to trusts where the settler had not explicitly mentioned in the trust instrument the assets in which to invest.

[16] The bonds guaranteed by Britain for colonies or foreign sovereigns were included in 1860 and the British municipal bonds and the stock of major British railways and utilities in 1889.

[17] Jessop (1976) notes that expectations of the change in the selling price of colonial bonds once they were included in the Trustee List were "wildly optimistic." For a detailed description of the lobbying by colonial interests to extend the privileges of inscription and trustee status to colonial bonds see Chavaz and Flandreau (2017).

exclusion from the trustee list.[18] Such a clause effectively made colonial legislation junior to UK courts where bondholders could sue colonial governments for the violation of the covenants of trustee bonds (Accominotti et al. 2011).

A final disposition in the Act is particularly revealing of the tradeoffs that the British government was trying to balance. The Act reaffirmed that inclusion in the trustee list was not equivalent to a formal guarantee.[19] At the same time that it helped reduce the borrowing costs of colonies, the British government was keen to avoid committing the British taxpayer to the debts of the colonies. Even though we show below that inclusion in the trustee list lowered the marginal cost of borrowing by colonies, the repeated assertion that securities in the list were the liability of their respective governments meant they were not information-insensitive securities in the sense of Dang et al. (2018). As late as 1924, the editorialist writing the 'City Notes' column for *The Times* reminded the public that "Parliament has assumed no legal obligation to trustees" and that the inclusion of a colony's bonds in the list did not ensure that it "shall always balance his budget, or shall refrain from creating debt too quickly".[20] The self-governing colony of Newfoundland acquired the dubious distinction of confirming this fact when it defaulted in 1932 on its debt, including three bonds in the trustee list (Dabla-Norris and Marinkov 2019).

In this section, we use market data to test the significance of these two changes in the regulation of colonial bonds. Chavaz and Flandreau (2017) estimated that these enhancements reduced colonial spreads, especially inscription. However, they did not compare them to the older technology to compress colonial spreads—explicit guarantees. Therefore, we focus here on measuring the spreads γ between guaranteed and non-guaranteed bonds and investigate whether these enhancements reduced the value of guarantees. We start by doing simple pre- vs. post-tests of mean spreads. Table 4 tests for the equality of means of the spreads of the yields to maturity of two Canadian guaranteed issues against four non-guaranteed bonds before and after the enactment of the 1877 Colonial Stocks Act. The pre-Act period runs from January 1869 to July 1877 and the post-period from August 1877 to August 1900, just before the enactment of the 1900 Act. Because of the long duration of the windows, we revert to using lower frequency end-of-month data collected from the *Investor's Monthly Manual*. Given the built-in seasonality in the prices and yields (mostly caused by the schedule of coupon and reimbursement payments of each bond), we deseasonalize them using an unobserved components model.[21]

In four out of eight pairs, we get the expected reduction in spreads ranging between one-quarter and one-half of pre-1877 levels. This suggests that inscription was a partial substitute for an explicit guarantee as a way of reducing the cost of borrowing by colonies. The cases in which there is no significant change in spreads involve two bonds (the 5% stock and 5% stock inscribed) that, in practice, already enjoyed the

[18] See *London Gazette*, 14 December 1900, p.8461. An Act to amend the Colonial Stock Acts, 1877 and 1892, and the Trustee Act, 1898, No 300.

[19] Each trustee list included the following mention: "The Revenues of the respective Governments alone are liable in respect of these Stocks and the dividends thereon, and the Consolidated Fund of the United Kingdom and the Commissioners of His Majesty's Treasury are not directly or indirectly liable or responsible for the payment of the Stock or of the dividends thereon, or for any matter relating thereto."

[20] "City Notes,' *The Times*, 23 Oct. 1924, p. 22.

[21] In the cases where we collected higher-frequency data, we only retained prices marked *ex dividend* in the price list (Tables 1-5).

liquidity advantages of inscription prior to the 1877 Act.[22] Figure 5 plots the evolution of the spread for one of the two guaranteed bonds in Table 4 (the 4% Intercolonial Railway bond) and is instructive at two levels. First, there is a high degree of coherence in the spreads against the several comparator bonds. A temporary deviation between the 5% Dominion and 5% Stock since 1874 was later reverted from 1879. The only exception is the 4% 1904-08 bond for which the spread deviates from the other three since late 1876. It is tempting to interpret this as a consequence of the 1877 Act, but the bond in question was not inscribed. Even so, a general repricing of the colonial cost of borrowing could be responsible for a reduction in yields that would affect more the lower-coupon bonds, such as the 4% 1904-08.[23]

Secondly, the figure shows that most of the contraction in spreads computed in Table 4 had already been achieved two years prior to the formal granting of inscription in London. Given the protracted negotiation and debate that culminated in the 1877 Act, it is reasonable to interpret that its effects had been anticipated and priced-in ahead of time. This raises a concern with the use of time dummies to test the effect of inscription or other regulatory enhancements of colonial bonds (more on this in section 4).

We repeat the exercise with respect to the next major regulatory change, the 1900 Colonial Stocks Act, which allowed for the inclusion of colonial bonds in the trustee list. This time, we can use two guaranteed bonds from Canada and another from Mauritius, which we compare to seven other bonds issued by them (Table 5).[24] In all but two cases, the one-sided tests reject the equality of means and the post spreads are smaller than before the passage of the act. The size of the compression of spreads is smaller than in Table 4 (26 bips against 37) but still sizable and equivalent to an 8% price increase in the affected bonds.[25] Significantly, the only bond for which there is no change in spreads is the part of the Canadian 4% 1904-08 that was inscribed in London after 1877. Moreover, in seven pairs of bonds, the average post spreads became slightly negative, implying that the advantages associated with the explicit guarantees had been eroded once both inscription and trustee status were available to colonial bonds (at least for Canada). This again is evidence of substitution between the three legal enhancements granted to colonial bonds in London. Figure 6 plots the spreads of the 4% 1913 guaranteed bond of Canada against its comparator bonds. This time, we split the comparison between comparator bonds that were not inscribed after the 1877 Act (panel A) and those that were (panel B). Consistent with the evidence in Table 4, the average spreads are smaller in panel B than in panel A, both before and after the enactment of the 1900 Act. But,

[22] Canada and the Cape colony had set up transfer books in London, separate from those at the Bank of England, prior to the 1877 Act. This made trading in them easier and cheaper for London-based investors even before the 1877 Act. Confusingly, the 5% Canadian Stock was listed as 'inscribed', but this refers to the separate register set up by Canada in London, not the inscription at the Bank of England granted by the 1877 Act (House of Commons 1891, p. A3).

[23] As the prices of the 5% bond were already above par prior to 1877, they would increase less-than-proportionally with the fall in the cost of borrowing because of expectations of conversion into lower-coupon bonds, as mentioned before.

[24] The pre period now runs from January 1879 to November 1900 and the post from December 1900 to December 1913.

[25] This compression in average spreads is consistent with an earlier attempt at measuring it: Baster (1933) computed a 37 bips reduction in colonial spreads after the 1900 Act.

apart from that, the time trends are similar. There is also some evidence of anticipation of the passage of the 1900 act one year prior.

The anticipation of the enactment of both acts reduces the power of the simple tests of equality of means. Fortunately, the history of lobbying for the extension of trustee status to colonial bonds provides us with a natural experiment to quantify more convincingly the value of this enhancement. This comes from a failed attempt to grant trustee status to colonial bonds 12 years prior to the 1900 Act, which also sheds light on the trade-offs which were explicitly weighed by politicians in London about facilitating the borrowing of colonies. As mentioned in section 2, between 1873 and 1892, the British Parliament did not authorize new guarantees for colonial loans. Yet, there was significant pressure from colonial governments, trustees, and trust beneficiaries for Whitehall to treat colonial stocks as trustee investments.

As part of this lobbying, a motion was brought in June 1888 to the House of Commons to include inscribed stocks issued by colonial governments in the trustee investment list.[26] The proponent, none other than Baden-Powell, highlighted the need to increase the investment options for trustees. According to him, against a backdrop of a large increase in funds under management by trusts "when they turned to the securities available for the investment of trust monies, they found there had not been anything like a proportionate increase in available securities. Consols and other funds under Government control had decreased by £100,000,000."[27] He then claimed a link between colonial public debt and UK economic activity as "those loans opened up our Colonies for trade and for the people" while noting that "the Colonies were in process of enormously rapid growth."[28] Finally, he observed that the securities of British municipalities were already included in the list, despite a poorer record of financial management compared to colonies.

Opponents noted that, unlike municipal bonds, there was not an upper constraint on borrowing by colonies and that, also unlike munis, there was no legal mechanism for bondholders to sue a colonial government. Goschen, the Chancellor of the Exchequer worried about the practicalities of selecting safe colonial stocks. The Court of Chancery was responsible for updating the trustee list and Goschen doubted its ability to make a call about what colonial securities to include: "were the Judges to meet and say what was the borrowing power of each Colony?"[29]

Despite the concerns about practicalities, the motion went forward in Parliament and the House of Lords approved a bill establishing the conditions for adding colonial bonds to the trustee list. All colonial stocks that were inscribed, with a coupon up to 4% and a price above 105 would be included.[30] The Economist reported on October 20th that the extension of the trustee list to colonial stocks would be effective from October 24th and published a list of 25 colonial stocks from 13 colonies to which it would

[26] For the debate see Hansard, Third Series, Volume 327, pp.660-683.

[27] Hansard, Third Series, Volume 327, pp. 661-62.

[28] Hansard, Third Series, Volume 327, pp. 664 and 665.

[29] Hansard, Third Series, Volume 327, p. 674.

[30] The coupon restriction was an attempt to prevent moral hazard, as only colonies with sound finances would be able to borrow at such low coupons. Stocks with coupons lower than 4% would be considered at proportionately lower prices.

apply.[31] This, however, was a premature celebration. On November 17th it was reported that the supreme court had rescinded its previous order to extend the trustee list, with effect from November 26th.[32]

This is an ideal setup for an event study of the market reaction to the announcement of the extension of the trustee status and also to its reversal. Table 6 performs such event study with event windows of 2 days around each of the dates mentioned above and estimation windows of 30 days. To benchmark the relevant market returns we use a single index model based on the 2.75%-2.5% consols. Once more, we use data from six Canadian bonds, half of which were inscribed, but none guaranteed.[33] Although the significance varies with the specific statistics, the evidence is consistent with the historical narrative. Early on, both classes of Canadian stocks posted positive returns above the market, but significantly larger for the three inscribed issues, the only ones that were expected to be included in the trustee list. Later, as the date for the expected enforcement of the bill approached in late October, the gains for the inscribed issues increased further, this time at a cost for the non-inscribed loans. Naturally, the unexpected reversal of the decision in November penalized more the inscribed issues, with some gains posted by the non-inscribed.

This event study confirms the earlier evidence from the test of means i.e. that markets were quick to reprice colonial bonds after changes in their legal status in London. The size of the abnormal returns in Table 6 is smaller than the implied price hike in the tests of means, but we should remember that the cumulative abnormal returns are calculated for much shorter periods.

In section 4, we will take a longer perspective on the pricing of colonial bonds and their various enhancements. In the next subsection, we offer a methodology to test whether the spreads between guaranteed and non-guaranteed colonial bonds were driven by imperial fiat or were instead due to other structural differences between the two classes of securities.

3.3 Financial Dependence

In 1899, the British Parliament passed another piece of legislation to facilitate colonial borrowing in London: the Colonial Loans Act.[34] This act created a general framework for crown colonies to apply for loans, rather than having Parliament consider each application individually (Kesner 1977). During the debate for the bill, the separation between self-governing and crown colonies was duly reiterated. The fact that the two types of colonies borrowed under very different circumstances was and is universally recognized. The committee preparing the bill reminded that “we cannot allow a Crown Colony to go bankrupt and whether we give a specific guarantee or not, if a Crown Colony does not pay, we shall have to pay”.[35] It is significant that the committee only singled out the crown colonies, which raises the question of how committed the British government was to the financial undertakings of its self-governing

[31] "The Investment of Trust Funds." *The Economist*, 20 Oct. 1888, p. 1317.

[32] "The Investment of Trust Funds." *The Economist*, 17 Nov. 1888, p. 1444.

[33] They are the 4% 1908, 4% 1908 inscribed, 4% Reduced, 4% Reduced inscribed, the 4% 1885 and the 4% 1885 inscribed. The three inscribed issues were mentioned in the list published by *The Economist* on October 20th 1888.

[34] Crown colonies could apply for loans for 55 years at interest rates set by the Treasury, but the resulting bonds would be senior to all other financial obligations of the colonies.

[35] Cit. in Burdett (1900, p.8).

colonies. We have already encountered cases where this commitment was made explicit through the granting of a guarantee. Puzzlingly, we have also encountered many instances of guarantees for crown colonies. As shown, the priorities of the guarantee system changed with the turn of the century. From guaranteeing almost exclusively bonds of self-governing colonies during the 19th century, the British government only guaranteed loans of crown colonies in the 20th century (Figure 1).

The LSE price lists made graphically explicit that guaranteed and non-guaranteed bonds were qualitatively different. Whereas the former were listed together with the other British government funds, the non-guaranteed colonial bonds were relegated to a later section of the list. In the case of crown colonies, this division was probably meaningless, but it is worth testing whether markets also saw the bonds of self-governing colonies as backed by the imperial government. In other words, we want to test whether the market priced in the financial autonomy of these colonies. This point is important because it is a prerequisite for the counterfactual scenario of a colonial default, which was repeatedly raised by the opponents of colonial guarantees (see section 1). Only tested in 1932 by Newfoundland, the specter of a colonial default ensnaring the political bond between Britain and its overseas dependencies emerged in the political debate almost contemporaneously with the first colonial guarantees.

To test whether markets priced in the financial autonomy of British colonies we use a panel VAR setup. This allows us to take the prices of both types of colonial bonds (guaranteed and not) and the British benchmark as endogenous and to investigate how these prices reacted to each other. Esteves and Tunçer (2016) show that foreign bonds guaranteed by the UK reacted to shocks to the British cost of funding, but not the non-guaranteed bonds of the same nations. In this exercise, we test whether there was a similar separation between guaranteed and non-guaranteed bonds of self-governing colonies. We also include a fourth type of bond in the system—the bonds of sovereigns guaranteed by the UK. As a class of explicitly safe assets, the two types of guaranteed bonds probably catered to a risk-averse set of investors, both individual and institutional. Consequently, it is possible that the two types of bonds were priced as a class rather than separately. By these bonds, we test whether colonial and non-colonial guarantees were priced differently.

Because of the high adjustment speed in financial markets, we estimate the VARs with high-frequency weekly data over a year counted from the issue of each guaranteed colonial bond.[36] Figure 7 plots the orthogonalized IRFs. We use the simple yields of each bond and show the response of each yield up to 8 weeks after a shock. Starting with the last column, we notice that shocks to the yields of British consols were absorbed by the market fairly quickly. The impulse response is only significant up to a week, which is consistent with the large liquidity of these securities. We then observe that the yields of guaranteed securities (colonial and not) reacted proportionately to the same shock and as fast as consol yields

[36] This is essentially the same data listed in Table 1 but with the addition of the British benchmark asset, the consols and the two sovereign bonds guaranteed by the UK in the sample period: the 4% Turkish loan 1855 and the 3% Egyptian bond of 1885. While Egypt's sovereignty at the time is disputable, it was never formally considered a British colony and we treat it here separately. As we have several bonds in the two categories of colonial bonds (guaranteed and non-guaranteed), we estimated the VAR system for all combinations of guaranteed and non-guaranteed comparators and averaged out the IRFs of the stable systems.

themselves.[37] Less liquid securities adjusted more slowly to own shocks (plots in the main diagonal), especially non-guaranteed colonial bonds whose impulse responses are significant up to 6 weeks after a shock. Revealingly, shocks to consol yields had no effect on the pricing of non-guaranteed colonial bonds and there are no cross-effects between the two types of guaranteed bonds. This suggests that not all colonial bonds were priced under the blanket of imperial fiat. Finally, the IRFs of British consols to shocks to the two guaranteed bonds are negative and barely significant between weeks 2 and 4. Even though we should not read too much into this result because of the low significance, it implies that positive shocks to guaranteed bonds had a more than proportional effect on spreads, possibly due to a safe haven effect of consols.

The decomposition of the forecast error variance is a different representation of this evidence.[38] Table 7 shows that orthogonalized shocks to consol yields were a significant contributor to the forecast error variance of both categories of guaranteed bonds, but not of non-guaranteed colonial loans.

4. Panel Regressions

In this section, we extend the geographic coverage and the time horizon. This allows us to change the counterfactual in our empirical analysis. Rather than restricting ourselves to within-colony comparisons as in the previous section, we estimate how markets priced colonial bonds and the three enhancements under study in this paper—inscription, trustee status and guarantees. We do so in the context of panel regressions where we include all colonial bonds as well as sovereign bonds listed in London. The comparison with sovereigns will be important to help parse out the guarantee premium between a liquidity and a risk component as in equation (1). As shown by others, British investors did not price colonial bonds on the underlying fiscal risk of default as sovereigns (Alquist 2010, Chavaz and Flandreau 2017). As mentioned in subsection 3.1, the potential disadvantage of this approach is that identification requires that we include a sufficient set of controls in a model as equation (2).

4.1 Long-Run Panel Regressions: Colonies vs. Sovereigns

In this section, we embed our study of guarantees in a large panel of government debt securities listed at the London Stock Exchange by foreign sovereigns and British colonies since 1880. Our data is observed at an annual frequency (end of December in the case of bond prices), and we include issuer fixed effects to identify the variation in bond yields within issuers. To control for common market trends we include year fixed effects.

This setup is similar to the one employed by Chavaz and Flandreau (2017) and we are grateful to the authors for sharing their dataset with us. Table 8 runs a series of models for the spread of colonial and

[37] Notice that the size of the impulse responses at horizon zero is similar or even slightly larger (in the case of non-colonial guarantees) than the shock to the consols yields, which is benchmarked in the Figure to be the standard deviation of the model's residuals of consol yields (not the standard deviation of consol yields).

[38] We use a Choleski ordering of variables from most exogenous to endogenous: British consols, non-colonial guaranteed bonds, colonial non-guaranteed bonds and colonial guaranteed bonds. We also experimented with changing the order of the last three variables, but the results did not change materially.

sovereign bonds with respect to the risk-free benchmark over the period 1880-1909.[39] As we extend the time period, we lower the frequency of observations to annual data. As Chavaz and Flandreau (2017), we measure illiquidity by the spread of the midpoint of the 'closing quotations' of each bond printed in the LSE price lists. We measure financial risk by the ratio between the interest burden of debt and the ordinary revenues of each issuer—sovereign or colony. Consistent with Chavaz and Flandreau (2017), we find a separating equilibrium in that colonial bonds were not priced on risk while the spreads of sovereign bonds reacted less to illiquidity. Chavaz and Flandreau (2017) decomposed the liquidity premium into the two institutional enhancements that colonial bonds came to acquire, as described in section 3.2: inscription and inclusion in the trustee list.

The first four columns of Table 8 show that inscribed bonds or bonds included in the trustee list had significantly smaller spreads. In both cases, the differential effect was mediated exclusively through the illiquidity discount.[40] What the authors did not test for was the effect of the third enhancement that we discuss in this paper—the privilege of an explicit guarantee from Britain. Despite the relatively small number of guaranteed issues in the sample (8 in 266 bonds), the regression in column (5) picks a significant effect from guarantees, which is larger in size than either inscription or inclusion in the trustee list.[41] The model in column (6) is unable to decompose this estimate into a level effect and the indirect effects mediated by illiquidity and risk.[42] Column (7) tries running a horse race between the three enhancements, and shows that, as far as we can separate them, inscription is the only one to retain an effect via the liquidity of bonds. The trustee list did not apparently have a marginal effect over and above the other two, as also noted by Chavaz and Flandreau (2017), nor did the explicit British guarantees of some bonds.[43]

However, the power of these tests is not high for two reasons. First, because the vast majority of the institutional enhancements were granted to colonial issues only (Table 9). This means that the models in Table 8 have no power to measure the effect of inscription, guarantees or inclusion in the trustee list for sovereign bonds. In other words, these variables only decompose the spreads of the colonial subsample in the pooled regressions. Second, although the colonial sample is more balanced as far as inscription (a little over 40% of colonial bonds were inscribed), almost all colonial bonds included in the trustee list were

[39] We follow Klovland (1994) in varying the British government securities that we use as benchmark over time. We also simplify the previous analysis and compute simple yields for all bonds. Considering that most bonds had long maturities in the period and the large size of the panel dataset, we do not expect that this will influence the results.

[40] Notice how the inclusion of inscription and trustee status eliminate the significance of the level effect of illiquidity on the spreads of the base category—sovereign bonds. This is somewhat odd in that contemporary literature referred to the pricing of liquidity in sovereign bonds (Clarke 1879). At issue may be the interpretation of the spread between the 'closing quotations' as a direct measure of the transaction costs in securities listed at the LSE, i.e. their bid-ask spreads. Contemporary opinion and recent research cast doubt on this interpretation (Esteves and Mesevage 2024).

[41] Six guaranteed issues included in the sample were colonial, the other two were the 3% Egyptian guaranteed loan of 1885 and the 2.5% Greek loan of 1898 (see Esteves and Tunçer 2016).

[42] The insignificance of the interaction term with risk is perhaps unsurprising since the default risk of guaranteed bonds should have been driven by the fiscal ratios of the UK, rather than of the guaranteed colonies or sovereigns.

[43] As Chavaz and Flandreau (2017) included Indian bonds in their sample, we tested whether the results in Table 8 were robust to including India. They are.

also inscribed (53 of 59). This is by construction since, as mentioned in subsection 3.2, the 1900 Colonial Stocks Act only allowed inscribed bonds to be included in the trustee list.[44]

In their interpretation, Chavaz and Flandreau (2017: 685) argued that "inscription was the signal that set the process in motion." Once the privilege of inscription for colonial bonds had been granted by the Colonial Stocks Act of 1877, investors anticipated (and priced in) the subsequent granting of trustee status to the same bonds. This would explain the insignificant coefficient for the trustee list in the regression controlling for inscription (column 7). Despite the logic of this reasoning, the imbalanced composition of the sample revealed in Table 9 makes it hard to test this anticipation effect. If all colonial bonds in the trustee list were also inscribed, multicollinearity prevents the regression model from estimating the two separate coefficients. A rough way of testing the anticipation effect is to backcast the trustee status of all bonds in the sample that eventually acquired it. Specifically, if a given bond was listed in the LSE between years t_0 and t_T, got inscribed in $t_1 > t_0$ and was included in the trustee list in $t_2 > t_1$, we recode the dummy variable for trustee status as 1 for all $[t_1, t_T]$. The results are listed in column (8) of Table 8. If the effect of the trustee list were anticipated after inscription, we would expect to see a decrease in the size of the coefficient on inscription and a corresponding rise in the trustee coefficient. We find mixed evidence. Counterfactually, the interaction between inscription and illiquidity doubles in size and significance, but the level effect of trustee status is now significant. However, this last effect is contradicted by a large wrongly signed interaction with illiquidity.

This suggests that the anticipation of the 1900 Act might have been less than what Chavaz and Flandreau concluded in their study. Indeed, after 1877 the narrative evidence does not support the view that colonial governments or Whitehall considered the inclusion of colonial issues in the trustee list as a foregone conclusion. As we saw previously, colonial governments continued to lobby for trustee status even after they had acquired inscription, while Whitehall resisted granting this further enhancement for a full 13 years. The event study reported in Table 6 further confirms the value attached to the inclusion in the trustee list after the granting of inscription. Even the 1900 Act allowed inclusion in the trustee list subject to several conditions that effectively excluded a large number of existing or future colonial issues.

4.2 Panel Regressions for Colonies

Given that the bonds from foreign sovereigns were effectively excluded from the institutional enhancements of inscription and the trustee list, we drop these securities from the regressions from now on and extend the time coverage of the empirical analysis to the end of the prewar period (1880-1913) as well as the interwar period (1919-1933).[45] We excluded the war years from the estimation to avoid the impact of the enhanced regulation and capital controls during the war on the pricing of assets at the LSE.

[44] The only exception were the guaranteed colonial bonds, which were included in the trustee list prior to 1900. The only non-colonial bond inscribed was an Egyptian issue, the 3.5% Inscribed loan of 1890. Consistent with Chavaz and Flandreau (2017), we do not classify Egypt as a colony, even after the start of the British protectorate in 1882.

[45] We extended the dataset of Chavaz and Flandreau (2017) both in geographic and time coverage. The authors' data was restricted to the period 1880-1909, which we extended to 1913 and we also collected new data on right-hand side variables for colonies not included in their analysis (see the Data Appendix B). Moreover, we collected new data for colonial issues listed in London in the interwar from 1919 to 1933.

We split the estimation sample between the prewar (Table 10) and interwar (Table 11) because there are marked differences in the results between the two periods.

Unsurprisingly, the prewar results are relatively close to those for the pre-1909 period (Table 8). The greatest departures are the variables illiquidity and risk. As expected, in the absence of sovereigns, there is no pricing of fiscal risk, but the proxy for illiquidity is significant, unlike in Table 8. It is interesting that among the population of colonial bonds, inscription and the trustee list no longer decompose the liquidity premium, a question to which we will come back below. We include a marker for the type of colony, which is equal to one for self-governing colonies. Even though this marker is insignificant in the prewar sample that will not be the case in the interwar.

Table 11 shows a differential effect of the type of colony in the interwar period. There is a level effect showing that self-governing colonies borrowed at a premium relative to crown colonies. On the other hand, the interaction effects imply the yields of these bonds priced in a fiscal risk and were less liquid than the base category (crown colonies). These results confirm previous findings in the literature about the different borrowing conditions of self-governing and crown colonies. Whereas the former group was rationed by price, the latter had restricted access to credit, as they could not initiate new loans in London without the previous agreement of the crown agents (Sunderland 2004 and 2007). The appearance of a risk premium for the bonds of self-governing colonies is a market-endorsed signal of these nations' path toward effective independence.

Another difference with respect to Table 10 is the stronger effect of guarantees in the interwar. The level effect doubles and the negative coefficient on the interaction Guarantee x Risk probably picks up the fact that the interwar British government extended guarantees mostly to colonies with lower fiscal capacity, contrary to its prewar policy (section 2). The credit ratings of British colonies in the period provide an indirect confirmation of these effects. Soon after the war, some of American credit rating agencies started rating foreign government securities, including colonial bonds. Figure 8 represents the histogram of ratings from the Moody's manuals of 1920 and 1927, separating between crown colonies (including mandates) and self-governing colonies. It is clear that crown colonies had worse ratings than self-governing ones, though the gap reduced over time. Among crown colonies, guaranteed bonds (marked in red) dominated the highest ratings, whereas they represented but a small fraction of Aaa bonds of self-governing dependencies.[46] Overall, there is a large variance in ratings among colonies. The lion's share of this variance is between colonies, but there is also within variance meaning that different bonds of the same colony did not always receive the same rating.[47] Guaranteed bonds typically had higher ratings than other same-colony bonds, but there was variation of ratings for non-guaranteed bonds as well. For instance, in 1927 Mauritius had one bond rated Aaa (the 1893 guaranteed bond), two rated A and one Baa. The difference between the highest and lowest ratings was three full notches, not unlike the spread

[46] In both years British government bonds were graded Aaa. The small number of guaranteed bonds is due to the fact that the majority of the prewar issues had matured before 1919 and that most of the interwar guarantees were given after 1927 (see Appendix A).

[47] We convert ratings to the same numeric scale used by Gaillard (2012). The between variance of ratings on this scale is 1.05, whereas the within-colony variance is 0.17.

in ratings for contemporary sovereigns.[48] For Moody's, colonial bonds were clearly not created alike, no matter the much-cited implicit guarantee by Britain.

In the interwar, the enhancements of inscription and the trustee status had become almost the rule for new colonial bonds, relative to a more parsimonious management of liquidity before the war: more than 73% of colonial bonds were inscribed or included in the trustee list, against 52% in the prewar period (see Table 12 and Table 13). Almost all of the increased coverage benefited bonds issued by governments of crown colonies and mandates, with almost no change for bonds of self-governing dependencies. The political management by Britain of the liquidity of its colonial bonds had a structural break in the war. From a parsimonious and defensive policy of restricting access to inscription and later the trustee status to colonial bonds before the war, Whitehall shifted to a much more liberal use of these enhancements targeted at poorer crown colonies without the fiscal capacity to fund the development projects envisaged by their imperial overlords (Figure 1).

To summarize the results of this section, we compare the marginal effects of the main independent variables in the three models of the last three tables in Figure 9. We standardize all continuous variables to mean zero and standard deviation one so that the marginal effects are scaled to one standard deviation increases in each variable (see Table 14). This standardization allows us to compare the size of the effects across models and samples. In particular, we can retain five inferences. First, the marginal effect of colonial status averages 185 bips (relative to sovereign bonds) in the mixed sample (Table 8). In the models estimated exclusively with colonies, self-governing colonies had a small penalty but only in the interwar. Second, there is a liquidity premium in all samples, which grows from 17 bips in the prewar mixed sample to 36 bips in the interwar colonial model. Third, the pricing of risk is only prominent in the mixed prewar sample.[49] Fourth, the relevance of inscription and inclusion in the trustee list decreases from the prewar to the interwar periods. Finally, the reverse applies to the premium from explicit guarantees. This premium increases from c. 50 bips in the prewar samples to over 120 bips in the interwar, confirming the greater relevance of this form of imperial support for colonial finances after World War I.

5. Conclusion

In this paper, we reveal the existence of a tiered system of colonial borrowing from the 19th to the 20th century. Ordinary colonial bonds formed the lower tier, while bonds with enhancements (inscription and trustee status) formed the next tier. At the top were bonds with explicit guarantees granted by Britain to some of its colonies. This tiered system qualifies the received wisdom about the implicit imperial fiat on all colonial bonds and the factors determining their pricing.

Previous literature had identified the structural differences between the borrowing of self-governing colonies and crown colonies and the importance of liquidity in the pricing of colonial bonds. While confirming these results, we show that the unappreciated category of explicitly guaranteed bonds was an important component in Britain's rationing of credit to its colonies. Relative to other legal enhancements (inscription and trustee status), guarantees were an older solution to facilitate colonial borrowing in

[48] In the sample of sovereign bonds collected by Gaillard (2012) for 1927, the between variance of Moody's ratings was 1.56 and the within variance 0.18.

[49] The size of the effects appears smaller because the standard deviation of the fiscal ratios is relatively large (see the summary statistics in Table 14).

London and a persistent one too—ranging from the 1840s to the first IBRD loans to the remaining British colonies of the 1950s and 60s. In the century covered in this paper, the British government authorized guarantees to colonial loans worth over £143 million.

While perhaps puzzling, we show that markets discriminated between explicitly guaranteed and non-guaranteed colonial bonds. Despite the implicit imperial fiat, which should cover all colonial government assets, guaranteed bonds paid lower yields than other colonial bonds. We identify this premium by developing methods to compute spreads between bonds of the same colony and to compare them with bonds issued by other colonies and sovereigns in London. We find the guarantee premium both in a within-colony setting and between bonds of colonies and sovereigns. By modelling the relation between British yields and the yields of guaranteed and non-guaranteed colonial bonds, we show that the imperial fiat extended to guaranteed assets only. This evidence derived from market prices is confirmed by the early ratings of British colonies by US credit rating agencies.

Over time, we find that the size of the premium formed a U pattern. Starting above 130 bips until the 1860s, it then fell progressively to values below 50 bips on the eve of World War I, only to recover back to 120 bips after the War. We show that the decay in the value of guarantees was related to the extension of the privileges of inscription and trustee status to colonial bonds in 1877 and 1900, respectively. A compositional change explains the recovery of the premium in the interwar. Prior to the War guarantees were exclusively reserved for self-governing colonies, while crown colonies and other dependencies without financial autonomy (mandates and protectorates) were the targets of colonial guarantees from 1919 to the 1960s. As self-governing colonies matured as autonomous borrowers in the London market, the value to them of an explicit guarantee correspondingly decreased—especially as guarantees included an unwelcome dose of imperial conditionality. In contrast, after the War, British authorities updated the old guarantee mechanism to facilitate the funding of developmental projects in its colonies without financial autonomy.

A final question, which we leave to future research, regards the motivations of British authorities to extend guarantees and other legal enhancements to the growing class of colonial bonds listed in London. Apart from lowering the cost of funding the strategic priorities and the developmental objectives of Britain in its sprawling Empire, the emergence of this financial technology in the mid-nineteenth century appears related to the interest in creating new classes of safe assets, as steady primary surpluses cut back the outstanding supply of consols prior to 1914. Guaranteed bonds were among the first securities to be included in the trustee list after UK public debt and were followed by other colonial bonds and new classes of securities, which formed progressively expansive trustee lists. By making colonial bonds increasingly closer substitutes to home loans, British authorities were moved not only by imperial strategy but also by financial interest.

Reference List

Accominotti, O., M .Flandreau and R. Rezzik (2011) "The Spread of Empire: Clio and the Measurement of Colonial Borrowing Costs" *Economic History Review* 64 (2): 385-407.

Alquist, R. (2010) "How important is liquidity risk for sovereign bond risk premia? Evidence from the London stock exchange" *Journal of International Economics* 82: 219-29.

Amihud, Y. and H. Mendelson (1986) "Asset pricing and the bid–ask spread," *Journal of Financial Economics* 17: 223–249.

Attard B. (2007) "From Free-trade Imperialism to Structural Power: New Zealand and the Capital Market, 1856–68" *Journal of Imperial and Commonwealth History*, 35:4, 505-527.

Attard, B. (2012) "Making the Colonial State: Development, Debt, and Warfare in New Zealand, 1853–76" *Australian Economic History Review*, 52: 101-127.

Baster, A. (1933) "A Note on the Colonial Stock Acts and Dominion Borrowing" *Economic History* 8: 602-608.

Boonstra, W. (1991) "The EMU and National Autonomy on Budget Issues: An Alternative to the Delors and Free Market Approaches" in R. O'Brien and S. Hewin, eds., *Finance and the International Economy*, Oxford: Oxford University Press, pp. 209–24.

Bordo, M. and A. Redish (2001) "The Legacy of French and English Monetary Institutions for Canada" in M. Bordo and R. Cortes-Conde, eds., *Transferring Wealth and Power from the Old World to the New World: Monetary and Fiscal Institutions in the 17th through the Nineteenth Century*, New York: Cambridge University Press, pp. 259-83..

Burdett, H. (1900) *The Stock Exchange Official Intelligence for 1900*, London: Spottiswode & Co.

Chavaz, M. and M. Flandreau (2017) ""High & Dry": The Liquidity and Credit of Colonial and Foreign Government Debt and the London Stock Exchange (1880–1910)" *Journal of Economic History* 77(3): 656-91.

Clarke, H. (1879) *Sovereign and Quasi sovereign states: their debts to foreign countries*, 2nd ed., London: Effingham Wilson.

Constantine, S. (1984) *The Making of British Colonial Development Policy: 1914-1940*. London: Cass.

Dabla-Norris, E. and M. Marinkov (2019) "Whom Do You Rescue? Honored Debts and Selective Defaults in Four British Dominions" in E. Dabla-Norris, ed., *Debt and entanglements between the wars*, Washington, DC: IMF, pp. 81-120.

Dang, T., G. Gorton and B. Holmström (2018) "Ignorance, debt and financial crises," Yale University, *Mimeo*.

Davis, L. and R. Gallman (2001) *Evolving Financial Markets and International Capital Flows. Britain, the Americas, and Australia, 1865-1914*, Cambridge: Cambridge University Press.

Degive N. and K. Oosterlinck K. (2021) "Independence and the Effect of Empire: The Case of 'Sovereign Debts' issued by British Colonies", in P. Penet and J. Flores Zendejas eds., *Sovereign Debt Diplomacies Rethinking sovereign debt from colonial empires to hegemony*, Oxford University Press, pp. 94-118.

Ellissen, H. (1904) *Trust Investments*. London: William Clowes and Sons.

Esteves, R. and G. Mesevage (2024) "Missing Markets: Microstructure and Liquidity on the 19th Century London Stock Exchange," CEPR Discussion Paper # 19008.

Esteves, R. and C. Tunçer (2016) "Feeling the Blues. Moral Hazard and Debt Dilution in Eurobonds Before 1914" *Journal of International Money and Finance*, 65 (July): 46-68.

Farr, D. (1955) *The Colonial Office and Canada 1867-1887*, Toronto: University of Toronto Press.

Ferguson, N. and M. Schularick (2006) "The Empire Effect: The Determinants of Country Risk in the First Age of Globalization, 1880–1913", *Journal of Economic History, 66*(2), 283-312.

Flandreau, M. and G. Legentilhomme (2022) "Cyberpunk Victoria: The credibility of computers and the first digital revolution, 1848–83," *Economic History Review* 75 (4): 1083-1119.

Flandreau, M. and F. Zumer (2004) *The Making of Global Finance 1880-1913*, Paris: OECD Development Center Studies.
Gaillard, N. (2012) *A Century of Sovereign Ratings*, New York: Springer.
Horn, S., C. Reinhart and C. Trebesch (2020) "Coping with Disasters: Two Centuries of International Official Lending", *NBER Working Paper* # 27343.
House of Commons (1891) *Report of the Departmental Committee Appointed to Consider the Question of the Investment of Trust funds in Colonial Inscribed Stocks*, C.6278, LVI.211.
Huillery, E. (2014). The Black Man's Burden: The cost of colonization of French West Africa. *Journal of Economic History, 74*(1), 1–38.
Jessop. D. (1976) "The colonial stock act of 1900: A symptom of the new imperialism?" *Journal of Imperial and Commonwealth History*, 4:2, 154-163.
Kesner, R. M. (1977) "Builders of empire: The role of the crown agents in imperial development, 1880–1914," *Journal of Imperial and Commonwealth History*, 5(3): 310-330.
Klovland, J. T. (1994) "Pitfalls in the Estimation of the Yield 1850-1914," *Journal of Economic History* 51 (1): 164-87.
Kothari, S.P. Jerold B. Warner (2007) "Econometrics of Event Studies" in B. Espen Eckbo, Handbook of Empirical Corporate Finance, San Diego: Elsevier, pp. 3-36.
Krozewski, G. (1996) "Finance and Empire: The Dilemma Facing Great Britain in the 1950s", *International History Review*, 18(1): 48-68
Krozewski, G. (2014) "Britain and the reordering of overseas aid, 1956–64" in *The Transformation of the International Order of Asia* ed. by. S. Akita et al. London: Routledge.
Messmer, P. (1939) *Le Régime Administratif des Emprunts Coloniaux*. Paris.
Muellbauer, J. (2013) "Conditional eurobonds and the eurozone sovereign debt crisis," *Oxford Review of Economic Policy* 29(3): 610-645.
Overseas Development Institute (1964) *Colonial Development*. England: ODI.
Stebbings, C. (2001). *The Private Trustee in Victorian England* (Cambridge Studies in English Legal History). Cambridge: Cambridge University Press.
Sunderland, D. (2004) *Managing the British Empire – The Crown Agents, 1833-1914.* London: Boydell Press.
Sunderland, D. (2007) *Managing British Colonial and Post-Colonial Development – The Crown Agents, 1914-74.* London: Boydell Press.
Sunderland, D. (2013) *Financing the Raj: The City of London and Colonial India, 1858-1940*. Woodbridge: Boydell Press.
Vaizey, J. S. (1890) *The Trust Investment Act, 1889 – The Law Relating to the Investment of Trust Money*, London: Sweet & Maxwell.
Wicker, E. R. (1958) "Colonial development and welfare, 1929-1957: The evolution of a policy", *Social and Economic Studies*, (1): 170-192.
Withers, H. (1910) *Stocks and Shares*. London: John Murray.

Table 1: Summary Statistics of Bonds (First Year since Issue)

Colony	Bond	Period	Simple yields		Turn
			Average	St. dev.	Avg. Width (%)
Guaranteed bonds					
Canada	4% G'teed Debentures	Dec 1842 – Dec 1843	3.617	0.080	
Canada	4% Intercolonial Railway	Aug 1868 – Sep 1869	3.821	0.068	1.213
Canada	4% Rupert's Land	Jun 1875 – Jul 1876	3.787	0.032	0.923
Canada	4% G'teed 1913	Jan 1879 – Feb 1880	3.689	0.036	0.900
Mauritius	3% G'teed Inscrib. Stock	Feb 1893 – Mar 1894	2.863	0.026	0.955
Non-guaranteed bonds					
Canada	6% Debentures	Dec 1842 – Dec 1843	4.974	0.400	
Canada	5% Upper Canada	Dec 1842 – Dec 1843	4.966	0.049	
Canada	5% Dominion	Aug 1868 – Sep 1869	5.363	0.132	
Canada	5% Stock	Aug 1868 – Sep 1869	5.359	0.088	
Canada	5% Stock Inscrib.	Aug 1868 – Sep 1869	5.362	0.060	
Canada	4% 1904-08	Jan 1879 – Feb 1880	4.194	0.047	1.192
Canada	4% 1904-08 Inscrib.	Jan 1879 - Feb 1880	4.197	0.050	1.193
Mauritius	4% Cons. Debentures	Feb 1893 – Mar 1894	3.908	0.038	2.405

Notes: the summary statistics cover the period of up to a year after the issue of each guaranteed bond. Simple yields are obtained by dividing coupon by price. We computed the turn width with reference to the midpoint: $(Ask - Bid)/((Ask + Bid)/2)$. Source: authors' database (weekly frequency).

Table 2: Summary Statistics of Spreads (First Year since Issue)

Colony	Guaranteed Bond	Issued	Non-guaranteed	Mean	St. dev.
Canada	4% G'teed Debentures	1842	6% Debentures	136.696	40.829
			5% Upper Canada	134.918	7.833
	4% Intercolonial Railway	1867	5% Dominion	154.264	13.255
			5% Stock	153.823	10.383
			5% Stock Inscrib.	154.134	9.685
	4% Rupert's Land	1869	5% Dominion	93.366	5.770
			5% Stock	93.447	4.512
			5% Stock Inscrib.	93.724	4.531
	4% G'teed 1913	1878	4% 1904-08	50.518	3.128
			4% 1904-08 Inscrib.	50.835	3.458
Mauritius	3% G'teed Inscrib. Stock	1892	4% Cons. Debentures	104.537	3.078

Note: values in basis points; spreads calculated from the simple yields of the underlying bonds. Source: authors' database (weekly frequency).

Table 3: Spreads Guaranteed vs. Non-Guaranteed Bonds, by Quinquennia

Yield type		1870	1875	1880	1885	1890	1895	1900	1905
Simple	Mean	101.71	89.46	92.54	38.99	22.10	23.81	11.94	1.85
		(1.48)	(19.54)	(40.27)	(28.27)	(28.86)	(33.07)	(30.91)	(5.27)
To Maturity	Mean	105.79	87.79	85.26	47.23	32.08	39.38	3.53	-10.61
		(8.01)	(11.36)	(24.58)	(18.21)	(19.44)	(18.61)	(50.75)	(28.22)
To Call	Mean	105.79	87.79	85.26	47.23	32.08	39.38	3.53	-10.61
		(8.01)	(11.36)	(24.58)	(18.21)	(19.44)	(18.61)	(50.75)	(28.22)

Notes: statistics based on the data for all colonial bonds in Table 2. Source: *Investors Monthly Manual*. Standard errors in parenthesis.

Table 4: Canadian Mean Spreads Before and After the 1877 Colonial Stocks Act (YTMs)

Guaranteed Bond	Non-guaranteed	Before Act	After Act	t-stat	p-value
4% Intercolonial Railway	5% Dominion	110	77	9.54	0.00
	5% Stock	101	102	-0.26	0.60
	5% Stock Inscrib.	105	106	-0.20	0.58
	4% 1904-08	90	47	23.14	0.00
4% Rupert's Land	5% Dominion	94	70	11.17	0.00
	5% Stock	68	95	-9.93	1.00
	5% Stock Inscrib.	70	99	-12.44	1.00
	4% 1904-08	87	40	29.21	0.00

Notes: values in basis points; spreads calculated from the yields to maturity of the underlying bonds; p-values from one-sided test of equality of means (with different variances). Source: *Investors Monthly Manual*.

Table 5: Mean Spreads Before and After the 1900 Colonial Stocks Act (YTMs)

Colony	Guaranteed Bond	Non-guaranteed	Before Act	After Act	t-stat	p-value
Canada	4% G'teed 1910	4% 1904-08	43	35	2.75	0.00
		4% 1904-08 Inscrib.	42	46	-1.91	0.97
		4% Reduced	27	-4	16.54	0.00
		4% Reduced Inscrib.	29	3	14.63	0.00
		4% 1885	23	-11	15.28	0.00
		4% 1885 Inscrib.	24	-5	13.39	0.00
	4% G'teed 1913	4% 1904-08	42	30	4.00	0.00
		4% 1904-08 Inscrib.	42	41	0.42	0.34
		4% Reduced	27	-8	19.93	0.00
		4% Reduced Inscrib.	29	-1	18.30	0.00
		4% 1885	23	-15	19.96	0.00
		4% 1885 Inscrib.	25	-9	17.95	0.00
Mauritius	3% G'teed Inscrib. Stock	4% Inscrib. Stok	26	13	6.08	0.00

Notes: values in basis points; spreads calculated from the yields to maturity of the underlying bonds; p-values from one-sided test of equality of means (with different variances). Source: *Investors Monthly Manual*.

Table 6: Event Studies for 1888 Inclusion in Trustee's List (Canadian Bonds)

	Jun-23		Jul-21		Oct-20		Oct-24		Nov-17		Nov-26	
Statistic	CAR	*p-val*	CAR	*p-val*	CAR	*p-val*	CAR	*p-val*	CAR	*p-val*	CAR	*p-val*
						Portfolio of non-inscribed bonds						
Normal	0.167%	0.582	0.116%	0.661	-0.055%	0.833	-0.418%	0.153	0.148%	0.546	-0.091%	0.751
Patell (1976)	0.167%	0.516	0.116%	0.668	-0.055%	0.539	**-0.418%**	0.044	0.148%	0.578	-0.091%	0.773
Boehmer, Masumeci and Poulsen (1991)	**0.167%**	0.000	**0.116%**	0.001	-0.055%	0.685	-0.418%	0.281	**0.148%**	0.009	-0.091%	0.493
Kolari and Pynnönnen (2010)	**0.167%**	0.000	**0.116%**	0.000	-0.055%	0.672	-0.418%	0.260	**0.148%**	0.006	-0.091%	0.467
Wilcoxon (1945)	**0.167%**	0.000	**0.116%**	0.000	**-0.055%**	0.000	**-0.418%**	0.000	**0.148%**	0.000	**-0.091%**	0.000
Kolari and Pynnönnen (2011)	0.167%	0.401	0.116%	0.745	-0.055%	0.125	-0.418%	0.117	0.148%	0.391	-0.091%	0.197
						Portfolio of inscribed bonds						
Normal	0.545%	0.261	0.326%	0.480	-0.283%	0.467	0.708%	0.103	-0.244%	0.520	-0.054%	0.900
Patell (1976)	0.545%	0.197	0.326%	0.490	-0.283%	0.456	0.708%	0.125	-0.244%	0.567	-0.054%	0.961
Boehmer, Masumeci and Poulsen (1991)	**0.545%**	0.035	0.326%	0.284	-0.283%	0.429	0.708%	0.296	-0.244%	0.367	-0.054%	0.918
Kolari and Pynnönnen (2010)	**0.545%**	0.088	0.326%	0.370	-0.283%	0.494	0.708%	0.364	-0.244%	0.444	-0.054%	0.929
Wilcoxon (1945)	**0.545%**	0.000	**0.326%**	0.000	**-0.283%**	0.000	**0.708%**	0.000	**-0.244%**	0.000	**-0.054%**	0.000
Kolari and Pynnönnen (2011)	0.545%	0.354	0.326%	0.311	-0.283%	0.119	0.708%	0.600	-0.244%	0.151	-0.054%	0.155

Notes: CAR is the average cumulated abnormal returns for each portfolio in the event window ($\pm$ 2 days from event date); *p-val* is the p-value of each statistic. The estimation window is capped at one month before each date. A single index model is used with the 2.75%-2.5% consols as benchmarks. All dates were coded from the reporting by *The Economist* of significant events, as follows. On Jun-23 *The Economist* reports on Baden-Powell's speech in the House of Commons in favor of including inscribed colonial stocks in the Trustee's list; on Jul-21 on the passing by the House of Lords of a bill doing so; on Oct-20 on the list of inscribed colonial stocks to be included in the list, effective Oct-24; on Nov-17 on the reversal of the previous decision, effective Nov-26. Source: daily data, collected from the *Course of the Exchange*.

Table 7: Variance Decomposition (First Year since Issue)

Impulse \ Response	Metropole	Other guaranteed	Other colonial	Guaranteed colonial
Metropole	0.599	0.391	0.051	0.126
Other guaranteed (non-colonial)	0.116	0.534	0.039	0.061
Non-guaranteed colonial	0.016	0.047	0.887	0.026
Guaranteed colonial	0.262	0.025	0.010	0.806

Note: decomposition for 8 weeks ahead.

Table 8: Colonies vs. Sovereigns with Credit Enhancements, 1880-1909

VARIABLES	(1) pooled	(2) pooled	(3) pooled	(4) pooled	(5) pooled	(6) pooled	(7) pooled	(8) backcast
Illiquidity	7.509	7.670	7.453	7.368	7.599	7.496	7.643	8.173*
	(4.792)	(4.779)	(4.827)	(4.829)	(4.837)	(4.853)	(4.815)	(4.891)
Risk	1.802**	1.796**	2.128**	2.055**	1.544*	1.527*	1.791**	1.642**
	(0.819)	(0.817)	(0.822)	(0.824)	(0.813)	(0.812)	(0.814)	(0.809)
Volume	0.006	0.005	0.003	0.003	0.007	0.006	-0.000	-0.001
	(0.056)	(0.056)	(0.055)	(0.055)	(0.055)	(0.054)	(0.054)	(0.055)
Age	0.002	0.002	0.001	0.001	0.002	0.002	0.001	0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Colony	-0.272	-0.315	-0.380	-0.385	-0.323	-0.334	-0.583	-0.593
	(0.905)	(0.908)	(0.888)	(0.888)	(0.880)	(0.876)	(0.891)	(0.887)
Colony x Volume	-0.109*	-0.109*	-0.093	-0.100*	-0.118**	-0.119**	-0.091	-0.092
	(0.061)	(0.061)	(0.059)	(0.059)	(0.058)	(0.057)	(0.060)	(0.059)
Colony x Age	0.029***	0.029***	0.031***	0.031***	0.032***	0.032***	0.031***	0.031***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Colony x Illiquidity	-2.610	-2.618	-2.624	-2.588	-2.697	-2.696	-2.670	-3.264
	(4.936)	(4.919)	(4.966)	(4.970)	(4.983)	(4.987)	(4.946)	(5.025)
Colony x Risk	-1.088	-0.973	-1.250	-0.955	-0.753	-0.654	-0.742	-0.635
	(0.842)	(0.859)	(0.835)	(0.836)	(0.835)	(0.828)	(0.841)	(0.838)
Inscribed	-0.068	0.112					0.110	0.588**
	(0.064)	(0.128)					(0.132)	(0.260)
Inscribed x Illiquidity		-5.927**					-7.838**	-20.076***
		(2.745)					(3.103)	(7.268)
Inscribed x Risk		-0.298					-0.331	-1.124*
		(0.407)					(0.429)	(0.656)
Trust			-0.282***	0.174			-0.050	-0.596**
			(0.075)	(0.167)			(0.137)	(0.268)
Trust x Illiquidity				-8.029**			1.265	14.941**
				(3.844)			(3.475)	(7.228)
Trust x Risk				-1.100			-0.082	0.994
				(0.778)			(0.386)	(0.689)
UK guarantee					-0.589***	-0.271	-0.268	0.298
					(0.136)	(0.286)	(0.335)	(0.422)
UK guarantee x Illiquidity						7.317	5.356	-7.953
						(4.470)	(5.476)	(7.675)
UK guarantee x Risk						-1.775	-1.613	-2.779*
						(1.146)	(1.303)	(1.458)
Constant	2.770***	2.790***	2.691***	2.718***	2.843***	2.868***	2.843***	2.894***
	(0.843)	(0.843)	(0.834)	(0.832)	(0.831)	(0.828)	(0.821)	(0.825)
Observations	3,760	3,760	3,760	3,760	3,760	3,760	3,760	3,760
R-squared	0.678	0.679	0.685	0.687	0.691	0.692	0.695	0.696
Issuer FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors, clustered by bond, in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 9: Number of Bonds in Each Bin, 1880-1909

		Inscribed				
		No Trustee		Yes Trustee		
Status	Guarantee	No	Yes	No	Yes	Total
Sovereigns	No	106		1		107
	Yes		2			2
Colonies	No	85		13	53	151
	Yes		6			6
	Total	191	8	14	53	266

Table 10: Results for Colonies Only, 1880-1913

VARIABLES	(1) colonies	(2) colonies	(3) colonies	(4) colonies	(5) colonies	(6) colonies	(7) colonies	(8) colonies
Illiquidity	6.745**	6.654**	6.799**	6.874**	7.687**	6.830**	6.633**	6.764**
	(2.967)	(2.949)	(2.997)	(2.912)	(3.022)	(2.718)	(2.811)	(2.833)
Risk	0.548**	0.548**	0.506*	0.539**	0.584**	0.587**	0.581**	0.561*
	(0.265)	(0.262)	(0.297)	(0.264)	(0.277)	(0.262)	(0.263)	(0.297)
Vol	-0.102***	-0.095***	-0.095***	-0.091***	-0.093***	-0.099***	-0.100***	-0.088***
	(0.018)	(0.019)	(0.019)	(0.018)	(0.019)	(0.019)	(0.019)	(0.020)
Age	0.029***	0.028***	0.028***	0.028***	0.028***	0.030***	0.030***	0.029***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Self-governed	-0.066	-0.073	-0.077	-0.066	-0.064	-0.083	-0.093	-0.106
	(0.162)	(0.161)	(0.159)	(0.165)	(0.163)	(0.157)	(0.158)	(0.156)
Self-gov. x Illiquidity	-1.337	-1.251	-1.303	-1.390	-2.067	-1.417	-1.241	-1.273
	(3.122)	(3.106)	(3.075)	(3.069)	(3.129)	(2.882)	(2.964)	(2.904)
Self-gov. x Risk	-0.052	-0.038	-0.039	0.053	0.037	0.011	0.051	0.060
	(0.361)	(0.357)	(0.359)	(0.351)	(0.348)	(0.351)	(0.351)	(0.348)
Inscribed		-0.042	-0.050					-0.056
		(0.049)	(0.089)					(0.094)
Inscribed x Illiquidity			-1.170					-1.552
			(1.719)					(1.689)
Inscribed x Risk			0.113					0.031
			(0.310)					(0.316)
Trust				-0.117***	0.059			0.001
				(0.043)	(0.095)			(0.099)
Trust x Illiquidity					-8.149***			-0.800
					(2.814)			(2.499)
Trust x Risk					-0.087			0.088
					(0.313)			(0.235)
Guarantee						-0.403***	-0.345	-0.378
						(0.090)	(0.263)	(0.283)
Guarantee x Illiquidity							2.228	2.457
							(2.251)	(3.220)
Guarantee x Risk							-0.481	-0.475
							(0.944)	(1.004)
Constant	1.259***	1.219***	1.237***	1.193***	1.217***	1.200***	1.208***	1.149***
	(0.295)	(0.295)	(0.291)	(0.297)	(0.298)	(0.295)	(0.298)	(0.296)
Observations	3,140	3,140	3,140	3,140	3,140	3,140	3,140	3,140
R-squared	0.766	0.766	0.766	0.769	0.771	0.778	0.778	0.780
Issuer FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors, clustered by bond, in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 11: Results for Colonies Only, 1919-33

VARIABLES	(1) colonies	(2) colonies	(3) colonies	(4) colonies	(5) colonies	(6) colonies	(7) colonies	(8) colonies
Illiquidity	-3.661	-3.581	-5.389	-3.677	-7.178	-2.718	-3.306	-6.549
	(2.532)	(2.569)	(4.469)	(2.537)	(4.638)	(2.600)	(2.792)	(4.853)
Risk	-2.847***	-2.851***	-1.305	-2.835***	-2.243***	-2.855***	-2.739***	-1.559*
	(0.623)	(0.625)	(0.856)	(0.617)	(0.841)	(0.623)	(0.616)	(0.889)
Vol	0.014	0.018	0.015	0.009	0.010	0.015	0.015	0.013
	(0.026)	(0.028)	(0.027)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)
Age	-0.034***	-0.033***	-0.033***	-0.034***	-0.034***	-0.033***	-0.033***	-0.032***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Self-governed	-0.970***	-0.970***	-0.800***	-0.966***	-0.914***	-0.944***	-0.944***	-0.721**
	(0.283)	(0.282)	(0.286)	(0.283)	(0.288)	(0.282)	(0.284)	(0.289)
Self-gov. x Illiquidity	16.519***	16.416***	16.802***	16.559***	17.126***	15.610***	16.162***	16.130***
	(3.174)	(3.189)	(3.279)	(3.160)	(3.250)	(3.223)	(3.355)	(3.625)
Self-gov. x Risk	3.291***	3.291***	2.869***	3.279***	3.013***	3.301***	3.176***	2.537***
	(0.704)	(0.708)	(0.704)	(0.696)	(0.726)	(0.704)	(0.699)	(0.715)
Inscribed		-0.031	0.391*					0.609***
		(0.100)	(0.207)					(0.201)
Inscribed x Illiquidity			2.580					-1.347
			(4.314)					(2.832)
Inscribed x Risk			-1.610**					-2.054***
			(0.629)					(0.677)
Trust				0.030	0.040			-0.419*
				(0.095)	(0.217)			(0.239)
Trust x Illiquidity					4.657			6.282
					(4.806)			(4.279)
Trust x Risk					-0.484			0.999
					(0.546)			(0.674)
Guarantee						-0.644***	-0.631***	-0.565***
						(0.078)	(0.149)	(0.168)
Guarantee x Illiquidity							4.724	3.134
							(3.064)	(3.596)
Guarantee x Risk							-2.281**	-2.637**
							(0.966)	(1.257)
Constant	1.081**	1.043**	0.638	1.120**	1.045**	1.026**	1.030**	0.788
	(0.448)	(0.451)	(0.513)	(0.438)	(0.474)	(0.448)	(0.449)	(0.493)
Observations	2,227	2,227	2,227	2,227	2,227	2,227	2,227	2,227
R-squared	0.629	0.629	0.636	0.629	0.631	0.632	0.632	0.642
Issuer FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses. p<0.01, ** p<0.05, * p<0.1

Table 12: Distribution of Colonial Bonds, 1880-1913

		Inscribed				
		No Trustee		Yes Trustee		
Status	Guarantee	No	Yes	No	Yes	Total
Crown Colonies	No	38	1		31	70
	Yes		1		2	3
Self-governing Colonies	No	68	4	10	64	146
	Yes		5			5
	Total	106	11	10	97	224

Table 13: Distribution of Colonial Bonds, 1919-1933

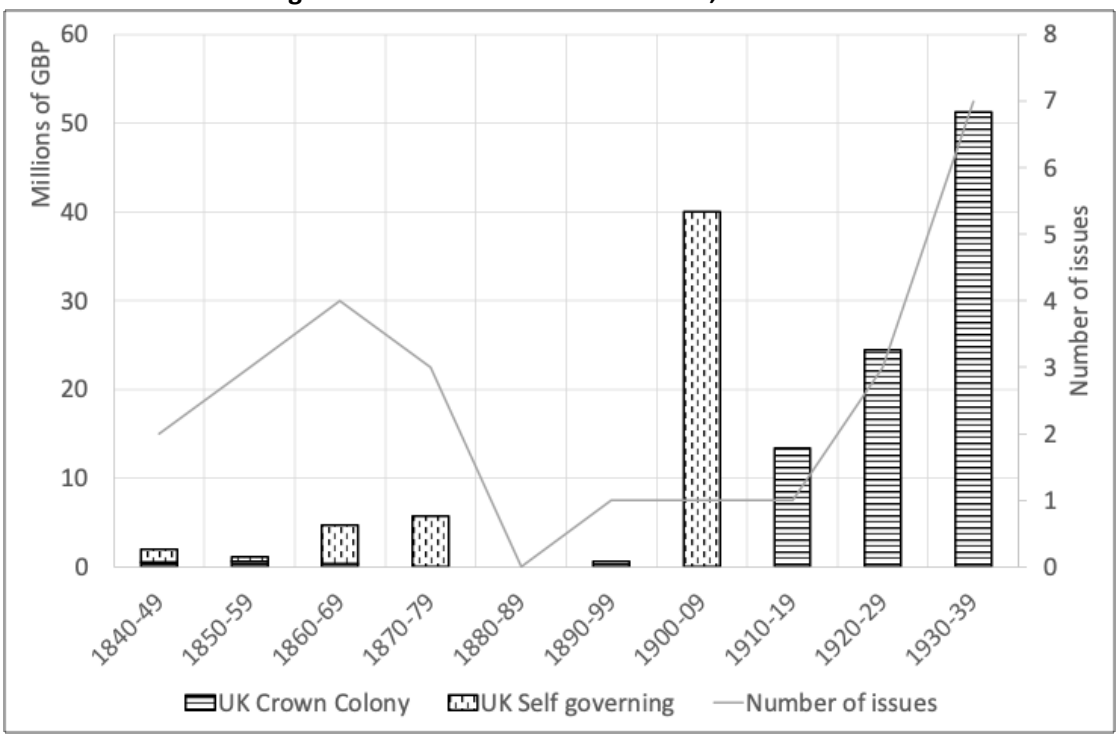
		Inscribed				
		No Trustee		Yes Trustee		
Status	Guarantee	No	Yes	No	Yes	Total
Crown Colonies	No	10	1	1	55	67
	Yes		1		5	6
Self-governing Colonies	No	61	24	16	98	199
	Yes					
	Total	71	26	17	158	272

Table 14: Summary Statistics of Long-Run Panel Samples

Samples	Spread	Illiquidity	Risk	Volume	Age	Self-gov.	Inscribed	Trustee	Guarantee
Prewar, mixed	1.399	0.023	0.262	14.594	15.093	0.449	0.277	0.153	0.038
(N = 3,760)	(0.885)	(0.021)	(0.103)	(1.527)	(10.361)	(0.497)	(0.448)	(0.36)	(0.191)
Prewar, colonies	1.059	0.023	0.244	13.976	15.229	0.644	0.477	0.300	0.039
(N = 3,140)	(0.609)	(0.022)	(0.101)	(1.502)	(9.48)	(0.479)	(0.5)	(0.458)	(0.194)
Interwar, colonies	0.300	0.028	0.284	14.533	18.071	0.702	0.764	0.837	0.022
(N = 2,227)	(0.761)	(0.015)	(0.122)	(1.46)	(13.802)	(0.457)	(0.425)	(0.369)	(0.145)

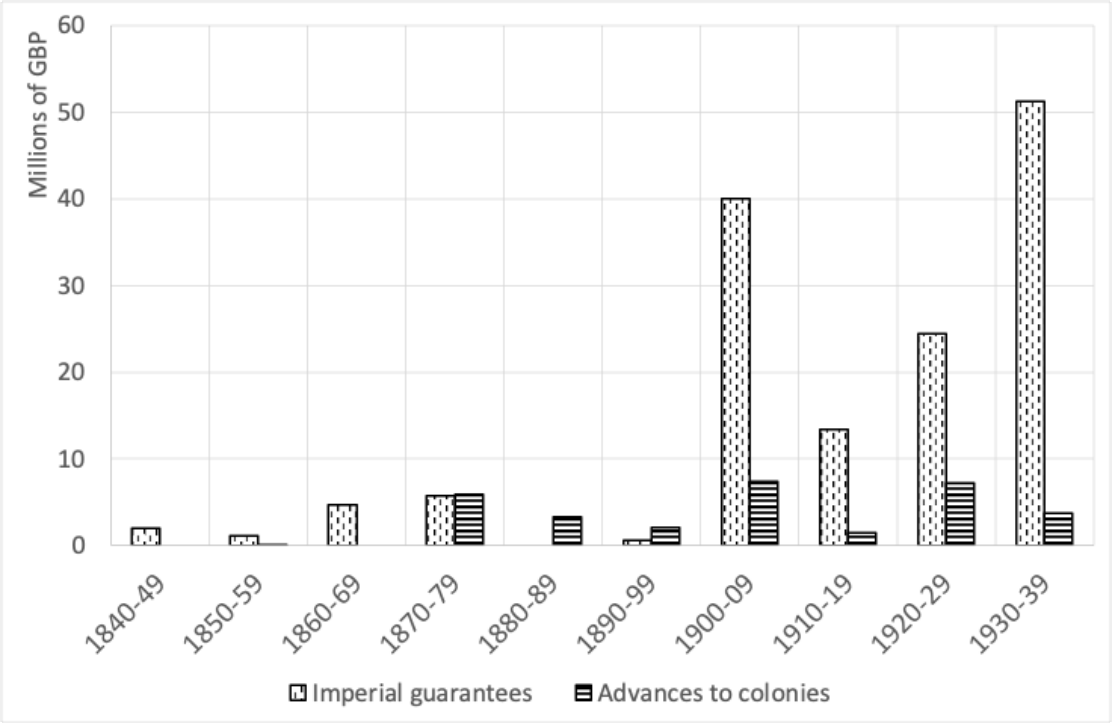
Note: For each variable / sample, we report the average and the standard error (in parenthesis).

Figure 1: British Colonial Guarantees, 1842-1934



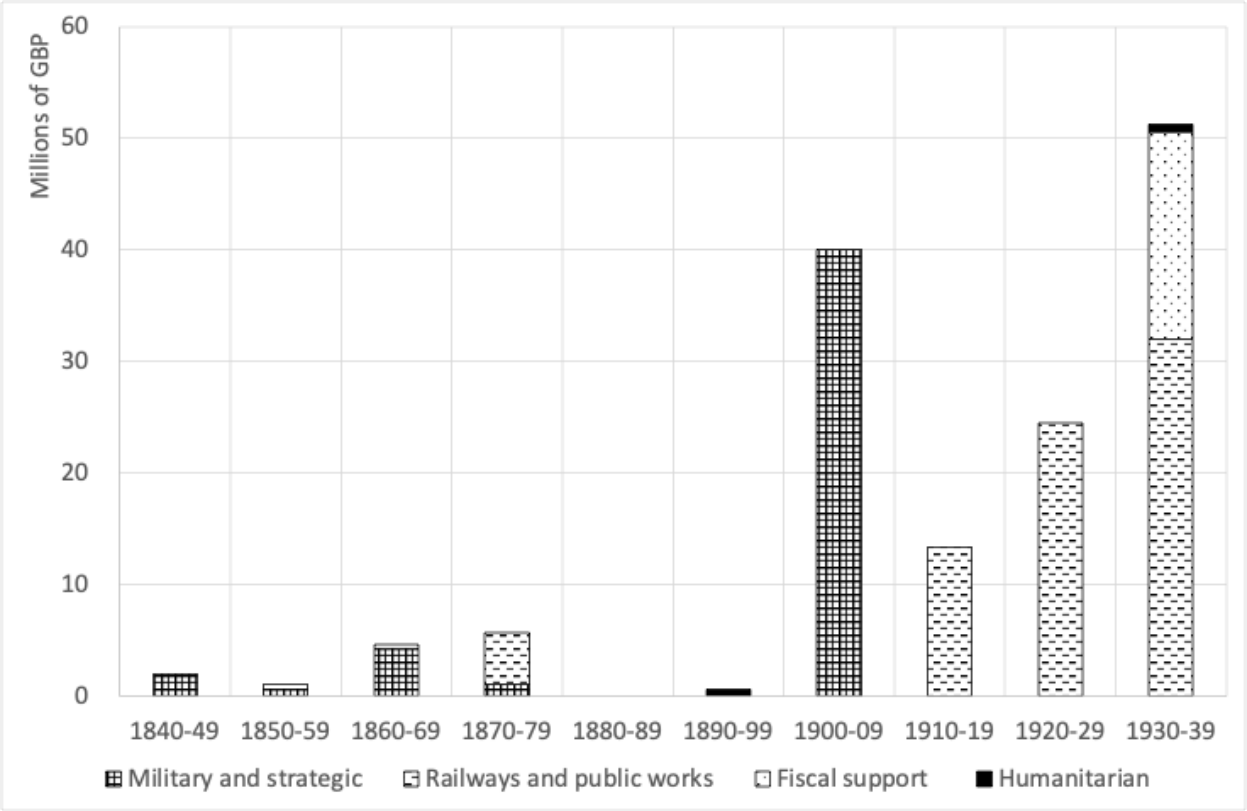
Notes: self-governing colonies are New Zealand, Canada, Transvaal and Newfoundland. Crown colonies and mandates are Mauritius, Jamaica, Prince Edward Island, Sudan, Palestine, East Africa, Tanganyika, Nyasaland, Rhodesia, Nigeria, Kenya, Uganda, Trinidad and Tobago, British Guinea and Swaziland. Figures do not include India.
Sources: see Data Appendix B.

Figure 2: British Colonial Guarantees vs. Advances, 1842-1934



Sources: see Data Appendix B.

Figure 3: Uses of Colonial Guarantees



Sources: see Data Appendix B.

Figure 4: Average Spreads by Quinquennia

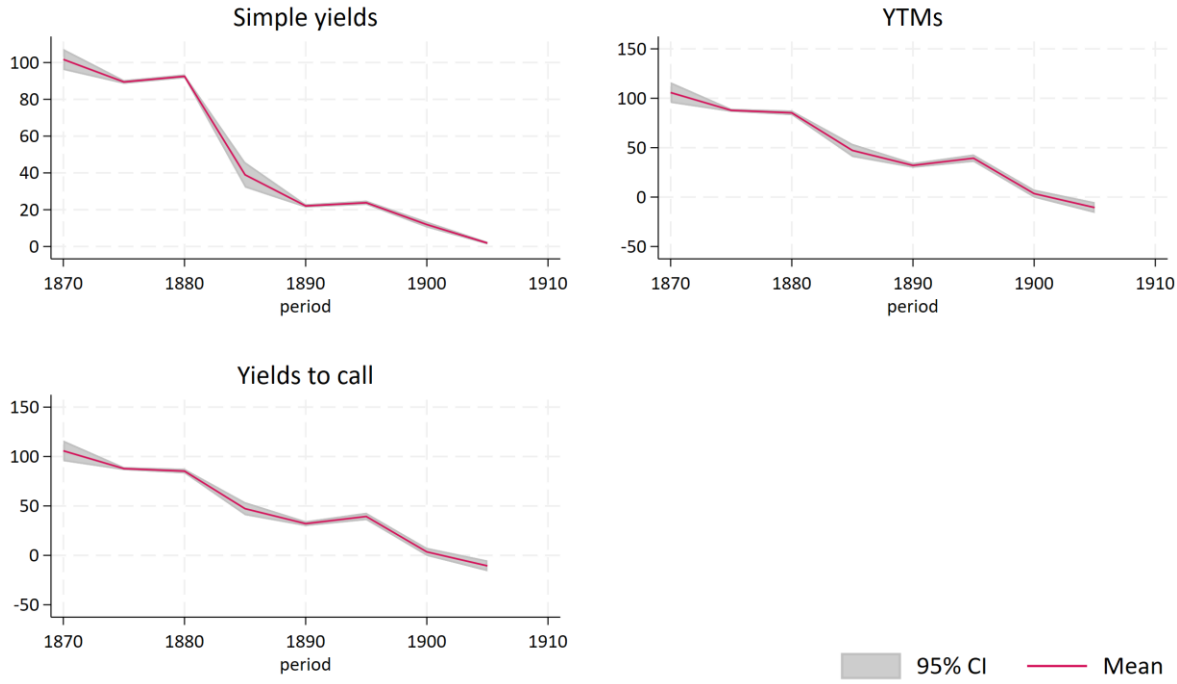
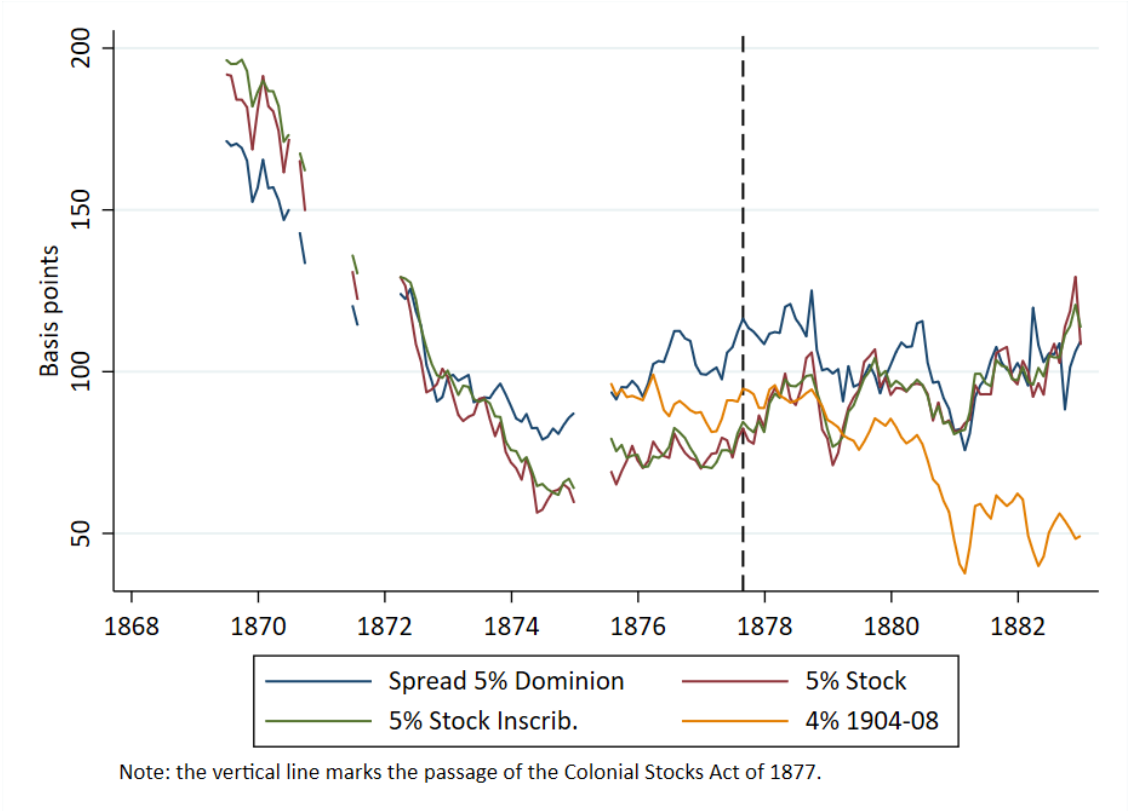


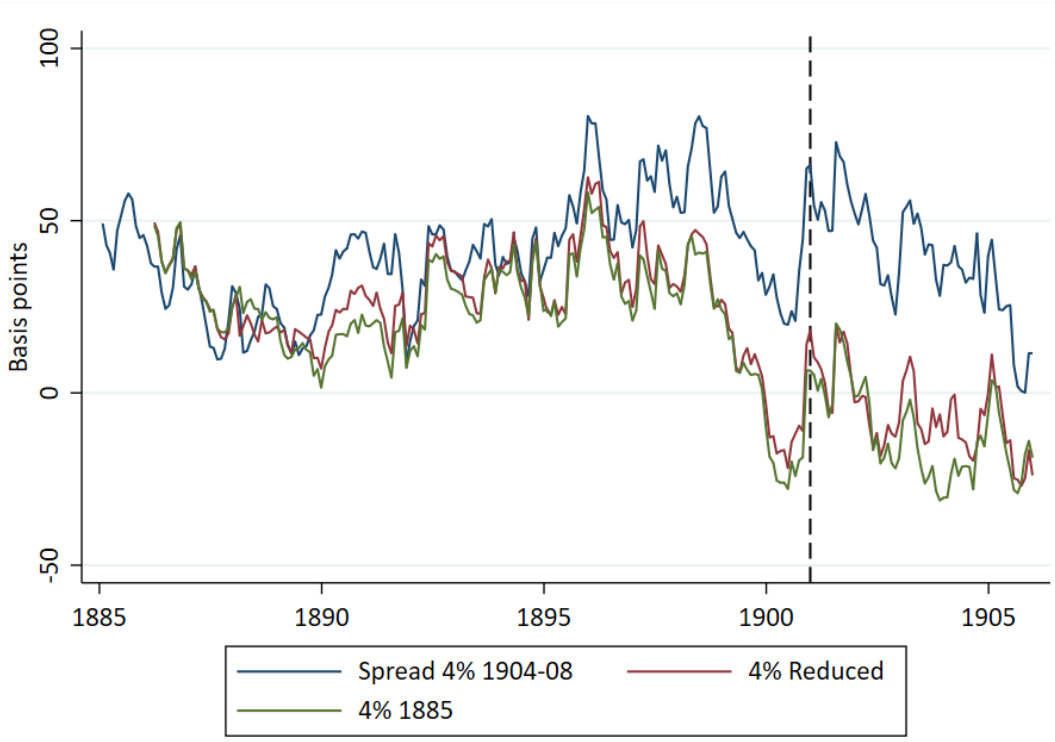
Figure 5: Spreads of Canada 4% Guaranteed Intercolonial Railway Bonds (YTMs)



Note: the vertical line marks the passage of the Colonial Stocks Act of 1877.

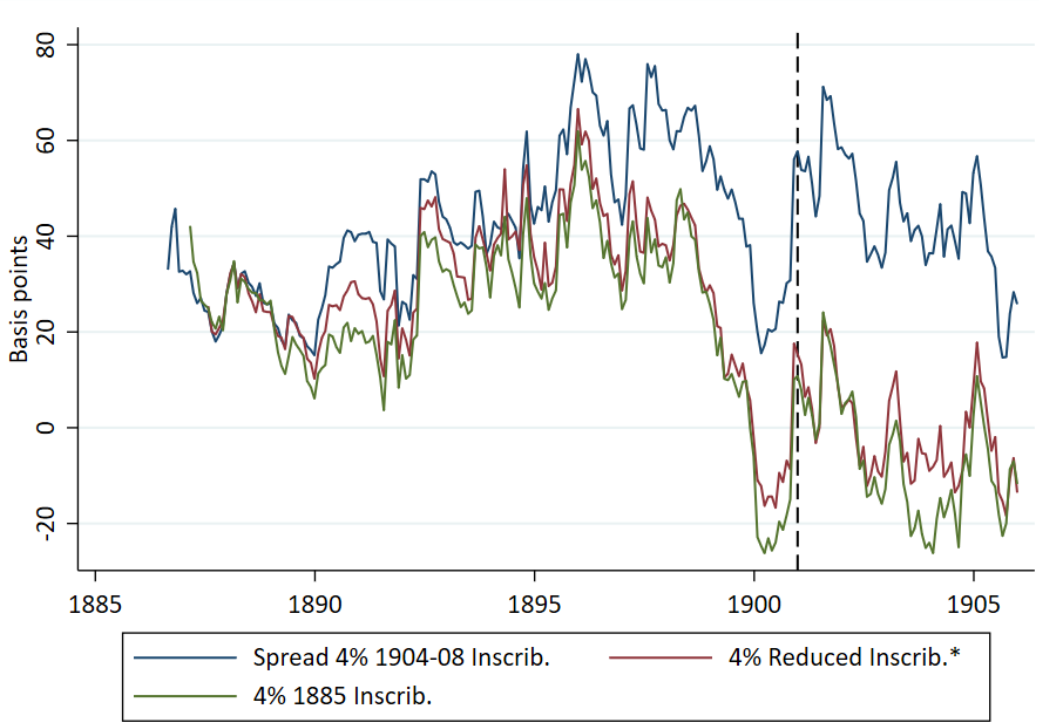
Figure 6: Spreads of Canada 4% Guaranteed 1913 (YTMs)

Panel A; with non-inscribed bonds



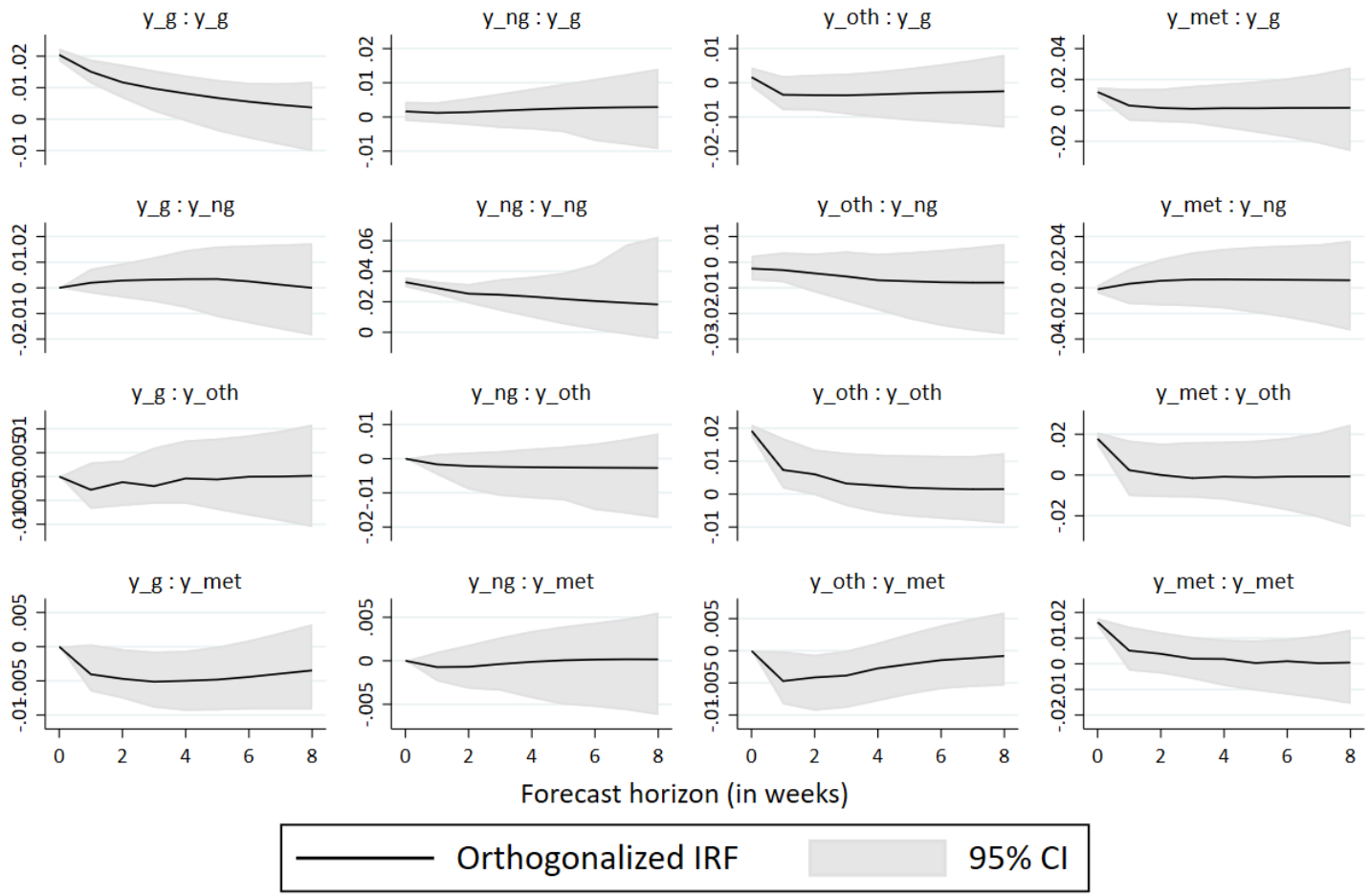
Note: the vertical line marks the passage of the Colonial Stocks Act of 1900.

Panel B: with inscribed stock



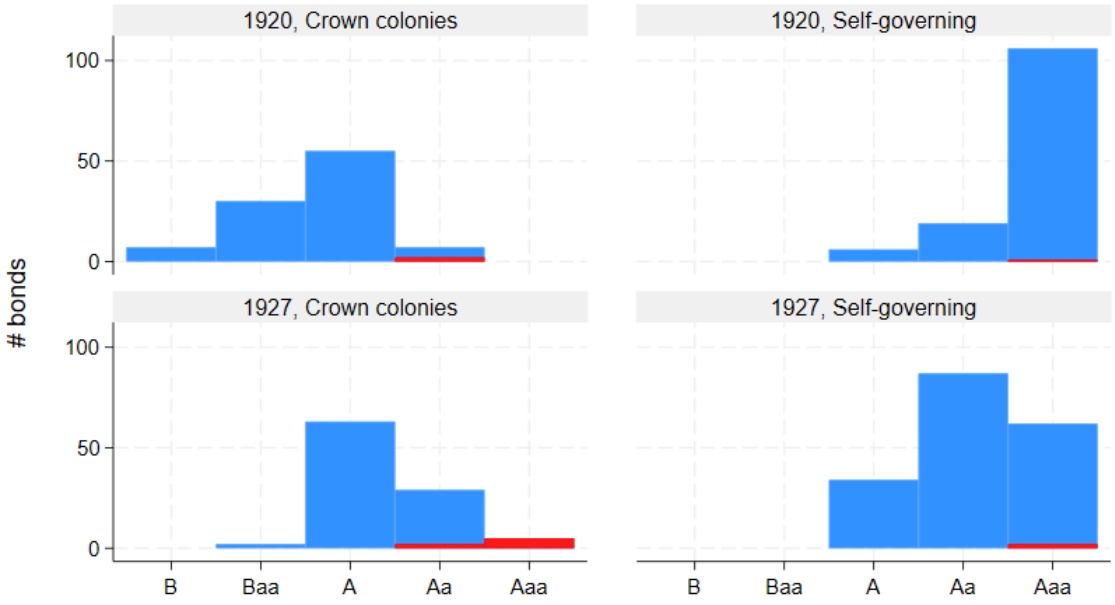
Note: the vertical line marks the passage of the Colonial Stocks Act of 1900. *Subject to 1/8% stamp duty.

Figure 7: Impulse Response Functions for First Year after Issue of Guaranteed Bond



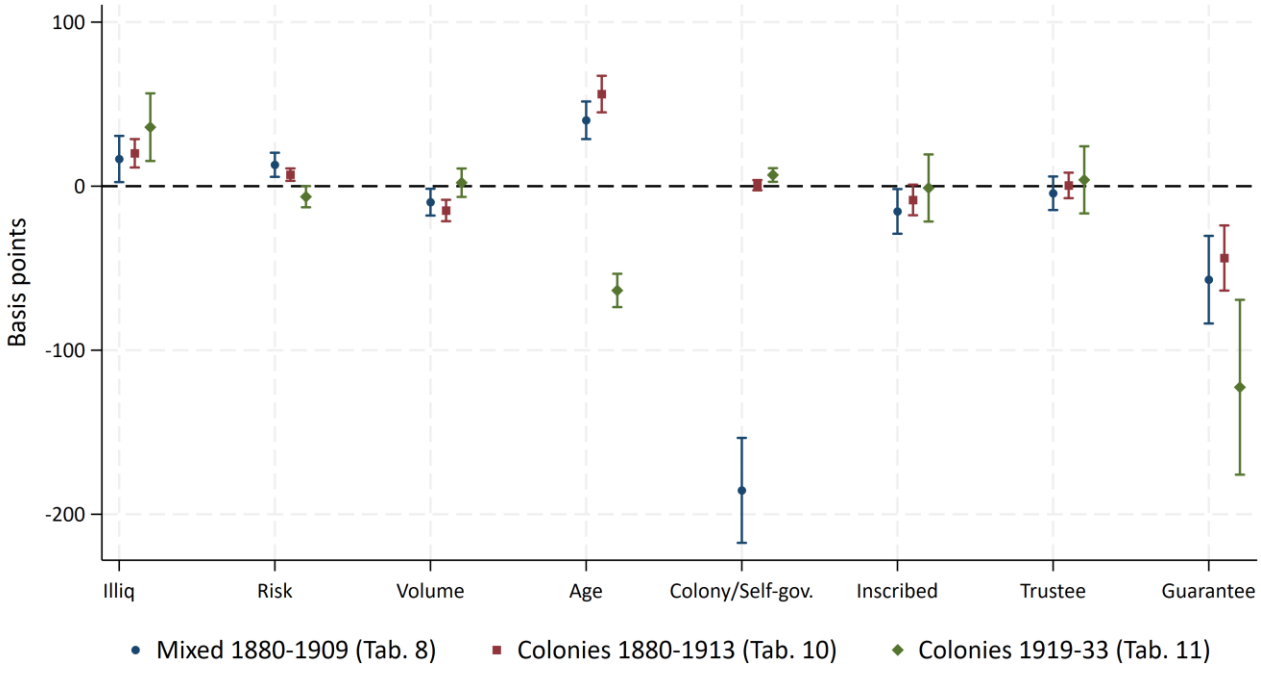
Notes: y_ng is the simple yield of non guaranteed colonial bonds; y_g of guaranteed bonds; y_oth of the other non-colonial guaranteed bonds and y_met of the UK benchmark bonds. CIs are estimated from 5000 Monte Carlo draws.

Figure 8: Credit Ratings of British Colonies



Notes: guaranteed bonds in red; N = 230 (1920), N = 282 (1927); within variance of ratings 0.17, between variance 1.05.
Source: *Moody's Manual of Investments. Foreign and American Government Securities.*

Figure 9: Marginal Effects of Estimates



Note: All continuous variables are standardardized to mean zero and standard deviation one. The marginal effects are computed from the models in column (7) of each Table.

Appendix A

Table A.1: Chronology of Guaranteed Colonial Bonds, 1842-1934

Year	Colony	Guarantee (£m)	Interest (%)	Purpose	Act	Notes
1842	Canada	1.5	4	Building of fortifications and railways.	1842 c.118	
1848	South America, West Indies and Mauritius	0.5	4	Introduction of free laborers, construction of roads, railways, works of drainage or irrigation.	1848 c.130, 1852 c.4	The sum was apportioned between Trinidad, British Guiana, Jamaica, St Lucia and Grenada. In 1852 another act confirmed that the funds can be "applied to the Conveyance back to India, China, and Africa of Free Laborers introduced therefrom into the said Colonies and Possessions"
1854	Jamaica	0.5	4	Consolidation of old debts conditional upon administrative reform in Jamaica.	1854 c.54	
1857	New Zealand	0.5	4	Creating a capital fund for land purchases of provincial governments conditional upon centralization in the colony	1857 c.51	In October 1858, the Bank of England cleared the balance from the market.
1858	Prince Edward Island	0.1	5	Purchasing land of the Island on behalf of the government	1858 Bill No.84	Although the Bill passed, this loan did not materialize.

Year	Colony	Guarantee (£m)	Interest (%)	Purpose	Act	Notes
1864	New Zealand	1	4	Supporting the colony in Waikato War.	1864 c.82, 1866 c.104	Despite the approval of the guarantee by the Parliament for a sum of £1m, the colony did not accept the guarantee. In 1866 another bill repealed this act. Instead, £500k of 4 per cent debentures were issued.
1867	Canada	3	4	Construction of an intercolonial railway.	1867 c.16	
1869	Canada	0.3	4	Compensating the Hudson's Bay Company for the surrender of the Rupert's Land to Canada	1869 c.101	
1869	Jamaica	0.37	4	In exchange for existing debentures	1869 c.69	
1870	New Zealand	1	4	Construction of roads, bridges, and communications and the introduction of settlers	1870 c.40, 1873 c.15	A report dated 1873 notes that £200k was raised. This loan was amended in 1873.
1870	Canada	1.1	4	Construction of fortifications.	1870 c.82, 1873 c.45	The loan ended up not being raised. See below.
1873	Canada	3.6	4	Construction of Pacific Railway and the improvement and enlargement of the Canadian canals	1873 c.45	The total issue was for £8m. The guarantee was only for £2.5m and £1.1m of 1870 loan. The loan was issued in instalments: £1.5m in 1875, £1.5m in 1878, and £200k in 1885.

Year	Colony	Guarantee (£m)	Interest (%)	Purpose	Act	Notes
1892	Mauritius	0.6	3	For the purpose of relieving the distress caused by the hurricane and for the construction of public works	1892 c.49	By debentures or inscribed stock.
1903-07	Transvaal	40	3	War contribution: acquisition of railways, repatriation, and the development of colony.	1903 c.27, 1907 c.37	£30m issued in 1903 and £5m issued in 1904. In 1907, another £5m guarantee was authorized for financing of intercolonial council, establishing the Land Bank to fund railways, public works, irrigation, agricultural settlement and development. £4m issued in 1909 and £1m issued in 1910 privately.
1913-24	Sudan	13.4	3.5-5.5	Irrigation and railways (Gezira scheme)	1913 c.10, 1919 c.43, 1922 c.15, 1924 c.8	In 1913, £3m was authorized at 3.5% but the interrupted because of the war. Three other acts in 1919, 1922 and 1924 increased the amount guaranteed. Issued £3.5m in 1919, and £2.88m in 1921
1926	Palestine	4.48	5	Railways, harbor construction, roads and other public works.	1926 c.62	
1926	East Africa	10	3-5	Railways, harbor construction, roads and other public works.	1926 c.62	This was authorized by the same bill as above. The East African colonies referred in the act are Kenya, Uganda, Northern Rhodesia, Nyasaland, or Tanganyika. Not all these colonies made use of the guarantee.

Year	Colony	Guarantee (£m)	Interest (%)	Purpose	Act	Notes
1928	Tanganyika	10	4.5	Railways, harbor construction, roads and other public works.	1926 c.62	
1931	Mauritius	0.75	5	Hurricane damage	1931 c.26	
1931	Tanganyika	10	4	Railways, harbor construction, roads and other public works.	1931 c.21	
1932	Tanganyika	0.75	4	To cover budget deficit	1932 c.17	
1932	Nyasaland	10	4.5	Railways, harbor construction, roads and other public works.	1926 c.62	
1933	Newfoundland	17.78	3	Solving the debt crisis on the condition of changing its self-governing status	1933 c.2	
1934	Nyasaland	10	3	Railways, harbor construction, roads and other public works.	1926 c.62	
1934	Palestine	2	4.5	For the re-settlement of displaced Arabs, water supply and drainage schemes for Jerusalem and Haifa, agricultural credits, construction of oil-berth, public buildings.	1934 c.33	

Data Appendix B

Bond prices

Daily bond prices and bid-ask spreads used in the short-term analysis were collected from the *Course of the Exchange* and the *Stock Exchange Daily Official List*. End-of-month prices for colonial and sovereign bonds were gathered from the *Investors' Monthly Manual* (1869-1929). The source for end-of-year prices and closing quotations (turn) of colonial bonds for 1910-33 is the *Stock Exchange Daily Official List*. For the period 1880-1909, we used the data collected by Chavaz and Flandreau (2017).

Bond covariates

Annual information on bond characteristics for 1910-33 including outstanding amount, guarantee status, issue and redemption dates, inscription and transfer arrangements were collected from the *Stock Exchange Official Yearbook* (a.k.a *Burdett's Official Intelligence*) as well as *the Stock Exchange Daily Official List*. For the period 1880-1909, we relied on the data collected by Chavaz and Flandreau (2017). However, we reviewed the trustee status of all bonds for the entire period (1880-1913 and 1919-33) by using Ellissen (1904) and Burdett's Official Intelligence.

Financial variables

We collected annual data on gross government revenues and interest service of colonies from the several issues of the *Statistical Abstract of Colonial Possessions of UK* and the *Stock Exchange Official Yearbook*. For the period 1880-1909, we also relied on the data collected by Chavaz and Flandreau (2017) to complement any missing years and sovereigns.