

**GOVERNMENT DEBT, REPUTATION AND CREDITORS' PROTECTIONS:
THE TALE OF SAN GIORGIO**

by

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Abstract

San Giorgio (1407-1805) was a formal association aimed at protecting creditors' rights and reducing the risk of debt repudiation against the Republic of Genoa. The creation and development of this institution align with debt models that predict lending if lenders can impose big penalties on debtor, and models in which lenders can differentiate between excusable and inexcusable defaults. San Giorgio shareholders enjoyed low credit risk but also lower returns on capital than prevailing on comparable foreign assets for which creditors' protection mechanisms were lacking. The Republic's *quid pro quo* was a low of cost of financing. Differences in credit risk were an important explanation of differences in long-term interest rates across countries in 16th and 17th century Europe.

JEL Classification:

Keywords: government debt, reputation, creditors' protections repudiation, returns, San Giorgio, Genoa

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I. INTRODUCTION

The Republic of Genoa was one of the earliest states to rely on public debt to finance expenditures. The origin of Genoese government debt goes back to the 12th century. The instruments were called *compere* (literally purchases) because they entitled lenders to receive an annuity funded by the revenues from alienated dues, tariffs, or indirect taxes (Gioffré 1967, p. 12). But in contrast with Venice, Genoa up to 1528 had a notoriously weak government, the result of deep rivalries between feudal nobles and a rising merchant class (Lopez 1963; De Negri 1986; Epstein 1996). To protect their interests, lenders organized themselves in associations and appointed officers who were formally recognized by government. By the turn of the 15th century, the size of public debt had become so financially burdensome and its structure so administratively difficult that the Republic created the *Casa* of San Giorgio (simply San Giorgio) with the expressed purpose of reducing the burden of public debt on government.¹ Legally, San Giorgio was a joint-stock company representing the interests of the Republic's creditors. It lasted from

¹ With some degree of approximation, Genoa had four types of government from 1096 to 1798: communal consuls (1096-1194), *podestà* (1194-1339), popular doges (1339-1528), and aristocratic doges (1528-1798); for a general history, see De Negri (1986) and the more restrictive Epstein (1996). San Giorgio, whose official name is *Officium procuratorum Sanctii Georgii super diminutione debitorum*, was established in the third phase, when the Republic submitted to the rule of King Charles VII of France and was run by Governor Jean Le Meingre Boucicaut. This phase is particularly difficult and quarrelsome for the Republic. The rising power of the merchant class, the *Popolo*, sets in motion a series of revolts against the feudal aristocracy, the Nobles, and in turn noble counter-revolts. According to the data compiled by Epstein (Appendix), Genoa from 1338 to 1538 suffered from 14 *Popolo* revolts, 11 Noble revolts, 7 joint revolts, 6 revolts led by the Fregoso family, and one civil war. Compared to Venice, Genoa had a weak government. The aristocratic dogeship of Andrea Doria in 1528 brought political stability through an agreement on power sharing between *alberghi* (family aggregations or clans) representing the Old Nobles and New Nobles; for inter-clan cooperation, read Greif (1995). This elite, divided in 28 *alberghi* of various sizes and lineages, was formally recognized in the *Liber Civitatis* or Golden Book from which the names of those who ran government and San Giorgio were extracted. Having achieved peace at home in 1528, Genoese financiers rose to the top; their

1407 to 1805 and during its long history it lent to the Republic at lower interest rates than prevailing elsewhere, but without an interruption of dividend payment.

The uniqueness of San Giorgio as a creditors' association has been emphasized by several authors through the ages. Macchiavelli (1965, pp. 494-95) is an early admirer of San Giorgio, which he characterizes as a 'state within a state', but a benevolent and well-administered state within the fractious and unstable state that was the Republic of Genoa before 1528. Other admirers of this institution are Cuneo (1842), Wiszniewski (1865), and Marengo (1911) who stress the quality of San Giorgio's governance and management. Heers' (1961) account of the development of San Giorgio in the 15th century flashes out the contrast, already noted by Macchiavelli, between a stable and competently run creditors' association and a divided and unstable debtor. Sieveking (1906), Lopez (1963) and Epstein (1996) stress the power of San Giorgio in enriching creditors at the expense of the state:

“Seldom in history have creditors so forthrightly stepped in and effectively taken over a government by creating a parallel institution, the Casa San Giorgio, ostensibly existing outside normal politics, to protect their own interests” (Epstein, p. 230).

From the viewpoint of this article, the distinctive feature of San Giorgio was its ability to raise creditors' bargaining power.² This, in turn, reduced creditors' fears of government defaulting on its obligations, and ultimately lowered the cost of debt to Genoa.

international preeminence continued for the better part of a century (Lopez 1964, pp. 462-3; Braudel 1992, pp. 164-168; Conklin 1998).

² San Giorgio had two other functions that are beyond the scope of this study. The first is that it was a full-fledged bank, except from 1445 to 1530 when its banking activities were restricted to the state, shareholders, tax collectors and suppliers (Felloni 1990, pp. 77-82). The other is that, at various times, it owned and managed various Genoese colonies (e.g., Famagusta and Corsica) that were bought against loans to the Republic (Epstein, p. 279).

The possibility of repudiation is a prominent feature of many economic models of debt. In some models of international sovereign lending, the threat that creditors will never lend again after a default is not costly enough to deter debt repudiation: the equilibrium solution is zero lending (Bulow and Rogoff 1989b). In other models, lending can occur if lenders can impose bigger penalties on debtor (Bulow and Rogoff 1989a). An interesting example of a sufficiently stiff penalty is the suspension of specie transfers from Spain to the Low Countries by the Genoese bankers against Philip II in the bankruptcy of 1575 (Conklin 1998). In other models, positive lending occurs if the government has no alternative to debt and unexpected events are observed by both lenders and debtors (Grossman and Van Huyck 1988). The debtor shifts onto the creditor part of the risks from bad events like wars and famine. Some defaults, complete or partial, are excusable if lenders can discriminate between justifiable causes from unjustifiable causes.

The second and third types of models provide some guidance in explaining the behavior of San Giorgio as virtually the exclusive lender to the Republic of Genoa. The fact that most of San Giorgio's shareholders were domestic residents does not weaken the main implication of international lending models, which rests on the expected benefits and costs associated with repudiation. The benefit from repudiation is the value derived from reallocating interest spending to other types of spending or to lower the tax burden. The cost of repudiation is that the borrower will no longer have access to the capital markets. Since reputation of the lender alone is not sufficient to discourage repudiation, additional costs have to be imposed on the debtor. Conklin (p. 506) lists three specific reasons why Philip II was willing to default on *asientos* (short-term debt owed primarily

to foreign lenders) – and not on *juros* (long-term debt held primarily by domestic residents): the power of the elites, the close link between those who were in charge of tax collection and *juro* investors, and the existence of an active secondary market for *juros*. The same conditions, not surprisingly, prevailed in Genoa for much of the period under consideration.

The paper is structured as follows. After a discussion of Genoese government debt and the role of San Giorgio as the dominant lender of the Republic (Section II), I move to a description of the principal mechanisms San Giorgio used to protect its shareholders against the risk of debt repudiation (III). Then I provide evidence that San Giorgio was more forgiving than selfish towards the Republic (Section IV) and that returns on capital for San Giorgio shareholders were lower than on comparable foreign assets for which creditors' protection mechanisms were lacking (Section V). Conclusions follow (Section VI).

II. GOVERNMENT DEBT AND SAN GIORGIO

The Republic of Genoa was very early in recognizing the value of tax smoothing. Beginning with the 12th century, the government entered into contracts with private citizens for the collection of uncertain tax flows against steady payments.³ The contracts were called *compere* and the return to the purchaser, who became in fact a tax collector, was determined through auctions or bilateral dealings. In addition to tax smoothing, the Genoese government had structural budget deficits that were financed by compulsory and voluntary loans to government. These loans were also called *compere* and bore an interest

rate that was supported by the flow of the alienated tax revenues (for example, the collection of the salt tax). Legally, the *compera* was treated as an annuity and the interest received was not considered usurious (Felloni 1989, pp. 9-10). In fact, it was a pure and simple public debt, possibly the first in Europe (Marengo, p. 22). Each *compera*, or debt issue, was divided in units called *luoghi* with a nominal value of lire 100. *Luoghi* owners were called *luogatari* and their names were registered in special books, *cartulari*. Each *compera* was a separate legal entity and was entitled to a flow of alienated tax revenues (called *proventi*), which were used to cover administrative expenses, taxes, ordinary and extraordinary contributions to the Republic, amortization funds, and interest (called *paghe*) to creditors; see Felloni (1994 Tomo 4, pp. 179-181).

San Giorgio, which was created in 1407, consolidated much of public debt under one roof by buying outstanding *compere* yielding from 8 to 10 per cent and transforming them into a single San Giorgio debt with a fixed coupon of 7 per cent. In addition, fresh capital arrived to San Giorgio from investors who wanted to be purchasers not of specific *compere*, but of the mix of assets owned by the institution. These investors were shareholders in the modern sense of the word; in fact, San Giorgio called them participants, *partecipi* (Marengo, p. 108). A few years after the creation of San Giorgio, in 1420, the coupon became variable, or more simply a dividend that reflected net earnings of the issuer (Cuneo, p. 307). The investment was risky in that the level of dividends was determined by (i) a flow of alienated tax revenues that reflected economic conditions in Genoa, (ii) the extent of extraordinary financial support that San Giorgio management felt was necessary to give the Republic, (iii) and periodic debt forgiveness.

³ For example, the first debt, *compera magna salis* or purchase against assigned revenues from salt dues, carried an 8 per cent interest rate; the *compera* to finance the defense of the Crimean

With the debt consolidation of 1539, Genoese debt was transformed into a perpetuity (Marengo, p. 177) and, as a consequence, market risk rose.

Secondary market

A market for *luoghi* had existed since the middle of the 13th century (Epstein, p. 147). By the 15th century, this market had become quite active, liquid, and sophisticated (Heers, pp. 147-162). Not only *luoghi* were bought and sold, but they were used for collateral by bankers, borrowers and tax collectors (Sieveking, pp. 37-38). The secondary market developed its own kind of brokers, who intermediated between sellers and buyers, and specialists, who built inventories of San Giorgio *luoghi*. Nobles, merchants, artisans, priests, churches, convents, and charities were among San Giorgio investors (Heers, pp. 176-190). There was no restriction against foreign ownership, a policy that was consistent with the economic and financial openness of the Republic. Many San Giorgio shareholders invested for the long term; others for the dowries of their daughters or to endow charities; others bought today with the expectation of selling tomorrow for a capital gain; and finally there were well-meaning Genoese citizens who wanted to help the Republic to re-pay its debt or free other citizens from odious taxes.⁴

peninsula in 1341 carried a 10 per cent interest rate; see Gioffré (pp. 37 and 59).

⁴ Investments for the benefit of the state were called *molteplici* or *moltiplicati*. An individual or an association would designate a certain number of *luoghi* for the repayment of debt and the elimination of odious taxes. These *molteplici* would be subject to the stipulation that dividends would have to be reinvested until the initial number of *luoghi* had reached a predetermined number (Wiszniewski, pp. 40-42).

Money market

As a by-product of the active government securities market, Genoa developed in the 15th century also a money market (Heers, pp. 162-173). This found its origin in the time difference between the “booking” of dividends and the actual payments, a difference that was due in part to the delay with which tax collectors delivered due revenues and in part to the scarcity of money. Dividends were credited in early May in accounts denominated in *lire di paghe*. This accounting unit was different from specie or cash transactions (*lire di numerato*). A creditor of, say, 10 *lire di paghe* was promised future delivery of 10 lire in cash. The market value in cash of 10 *lire di paghe* would be naturally less than 10, the size of the discount depending on the equilibrium rate of interest in the money market and the future delivery date. Some investors cashed their *lire di paghe*; most used them as a substitute for cash.⁵ Tax collectors would credit San Giorgio of due revenues in accounts denominated in *lire di paghe*. San Giorgio, in turn, would credit shareholders’ dividends in the same unit of account. Merchants accepted *lire di paghe* and paid in *lire di paghe*. These money-like transactions were facilitated by the fact that San Giorgio acted as a clearinghouse, allowing accounts denominated in *lire di paghe* to change ownership with a simple endorsement; these, in time, became bank notes.⁶ Dividends were also traded in organized markets such as the Genoese-dominated Besançon fair (Da Silva 1969, p. 382).

⁵ Payment of dividends in specie was limited to relatively poor investors and to sums less than 20 lire (Felloni 1994 Tomo 4, p. 182).

⁶ For an early specimen of bank notes see Cuneo (p. 324).

III. GOVERNANCE AND CREDITORS' PROTECTIONS

San Giorgio had a complex, and in many ways modern, governance structure consisting of a General Assembly, directors, inspectors, auditors, officers, and even judges; for details see Wisniewski (pp. 179-202). Governance evolved over time and served three basic objectives: protecting creditors' interest, minimizing conflicts of interests, and maintaining independence from government. Preeminent in the structure were the General Assembly (*Consiglio grande*) and the Protectors (*Protettori*). The Assembly, composed of 480 shareholders, met at least once a year and voted on big issues and set the rules of the game. The Protectors, eight distinguished citizens of the Republic, acted as a modern Board of Directors with management responsibilities.⁷ Protectors, in fact, ran San Giorgio and were chosen from the same pool of people who ran government. The rule was that top decision makers in both government and San Giorgio had to represent the Nobles and the *Popolo*.⁸ This rule served to align San Giorgio's interests with those of the Republic: the same aristocratic and business elites were running government and San Giorgio. This, in turn, reduced the risk that the Republic would repudiate its debt. A similar condition is noted by Conklin in his study of Spain under Philip II.

In addition, protectors –but it was true also for other top management positions-- had to have three other key attributes: significant ownership in San Giorgio, high professional competence, and prudence. The ownership requirement served to align the interest of management with those of shareholders (Heers, pp. 119-120). Professional qualifications

⁷ The Office of the Protectors actually began in 1323 (Gioffré, p. 15), but developed in full under San Giorgio.

and prudence (a proxy for risk aversion) gave San Giorgio a disciplined and long-term view in decision making. The fact that San Giorgio kept five secret books with a list of eligible people for top management positions reflects the importance the institution assigned to the recruiting process (Marengo, p. 230). To minimize conflicts of interest, protectors were elected for one year, but were given a second year to handle unfinished business of the previous year. Re-election could occur only after three years since the previous office.

Among the duties of the Office of the Protectors, two stand out in reducing the risk of debt repudiation. The first is full responsibility over the collection of revenues from alienated dues, taxes and tariffs; the second is judicial competence on all matters pertaining to the *compere* (Felloni 2001, pp. 325-27).⁹ Tax evasion was a crime against San Giorgio, and tax evasion cases were heard by Protectors who had the means to hand out stiff penalties, including capital punishment and excommunication (Heers, pp. 129-30).¹⁰ There was no interference whatsoever from government in the carrying of justice (Gioffré, p. 16). Beginning with 1453, each new Doge reaffirmed solemnly the sanctity of the *luoghi* and the prerogatives of San Giorgio (Marengo, p. 94). Furthermore, with the debt consolidation of 1539 the Republic committed not to raise new taxes without the consent of Protectors and thus allayed the fears of San Giorgio's shareholders of revenue dilution (Marengo, p. 117).

⁸ See footnote 1 on power-sharing agreement in Genoa. Heers (p. 577) speaks of fixed proportions: 50 per cent of the positions had to go to nobles, 25 per cent to merchants and 25 per cent to the artisans.

⁹ Other critical functions of the Office were supervision of cash transactions, accounting records, and auditing.

¹⁰ Pius II, in 1463, was the first pope to issue an excommunication bull against those who did not pay San Giorgio's claims (Marengo, p. 94).

In sum, the shared values of the elites, the tight control over tax collection and tax evasion, the constraint on new taxes, and the solemnity with which the Republic continuously reaffirmed the rights of government creditors gave San Giorgio's shareholders strong protections against the risk of default. This protection was more extensive than elsewhere, for example in Spain under Philip II (Conklin). Overall, this evidence confirms the importance of creditor-imposed constraints in reducing incentives to repudiate debt and is consistent with those models where lending can occur if lenders can impose big penalties on debtor (Bulow and Rogoff 1989a).

IV. FORGIVING OR SELFISH LENDER?

As mentioned in the Introduction, some economic historians have viewed San Giorgio as an institution selfishly dedicated to the interests of the creditors without any consideration about the general welfare of Genoa. Sieveking, in the preface to his volume, warns his Genoese friends that they must "...reflect on the serious social damages of which San Giorgio was an expression..." (p. XI). Later, in the volume, he states that: "The State had alienated to this creditors' organization the greater part of its revenues; and it had become poor for the profit of individual interests, to which San Giorgio had given a hand" (p. 211). Along the same lines, Epstein deems that: "...nobles and merchants passed on to the general public the main burden of paying for government, but, as most observers have noted, after 1490 the state was effectively a pensioner of San Giorgio" (p. 279). Is the evidence consistent with such harsh judgments?

In the Grossman and Van Huyck' model, the lender has the same information set of the borrower. The lender can differentiate between excusable and inexcusable lapses in interest and principal payments, and is forgiving if the borrower does not act opportunistically. Let us see how closely the history of San Giorgio conforms to the implication of this model. First, on information, San Giorgio appeared to be as knowledgeable as the Republic on the state of the economy and its politics. Not only it shared the same elite that ran government, but San Giorgio collected most of Genoa's tax revenues, which are a good barometer of economic conditions. In addition, San Giorgio was active in gathering data at home and abroad.¹¹

Second, San Giorgio supported financially the Republic in a variety of ways, from yearly fixed-amount contributions to occasional debt forgiveness.¹² Yearly ordinary contributions were set at lire 33,000 in 1490 and then raised to lire 50,000 in 1539, but often these were supplemented by extraordinary ones. For example, in 1590 San Giorgio distributed to the Republic and Genoese charities lire 326,639, amounting to approximately one-fifth of dividends (Giacchero, pp. 133-36). Debt forgiveness tended to occur at times of financial crisis for the Republic. With the debt consolidation of 1539, San Giorgio donated the Republic *luoghi* for a nominal value of lire 350,000 (Giacchero, p. 54). Following the plague of 1656-57, San Giorgio forewent the collection of due revenues on customs, grain and wine for a period of at least three years

¹¹ San Giorgio's *officium caratorum*, the equivalent of today's research department, dealt with tax evasion, the Genoese economy, and the activity of Genoese merchants and diplomats abroad (Heers, p. 130).

¹² Giacchero (1979, p. 131) lists eight different ways under which San Giorgio transferred funds to government. Most of what follows is drawn from Giacchero.

(Giacchero, p. 435). Another act of debt forgiveness took place in 1664 (Giacchero, p. 477).

Third, San Giorgio substituted for the Republic in the provision of public goods such as harbor, roads, fortifications and the defense of Genoa's colonies (Sieveking, pp. 228-231; Heers, pp. 140-46). To be sure, these expenses were not incurred out of altruism alone. As a case in point, the construction of the warehouses along the harbor in 1641 enhanced San Giorgio's ability to raise custom revenues. Finally, San Giorgio administered the so-called *molteplici*, that is *luoghi* earmarked for accumulation and the reduction of government debt (cf. footnote 4). In times of financial distress, the Republic requested that San Giorgio paid to government dividends accrued on the *molteplici*, in direct violation of the donor's intentions; and San Giorgio acquiesced.¹³

In sum, the behavior of San Giorgio is broadly consistent with the implications of Grossman and van Huyck's model, which envisions that a lender can distinguish between excusable and non-excusable lapses in interest and debt payments. Intuitively, a large creditor has a lot at stake and knows that its fortunes are tied up to those of the debtor. An alternative and more direct way to see whether San Giorgio represented greedy and powerful investors, who extracted extraordinary resources from the Republic, is to compute rates of return on San Giorgio's investments and to compare them with equivalent investments outside Genoa. We now turn to this issue.

¹³ Eventually, this practice discredited the Republic and discouraged future potential donors to continue it (Giacchero, p. 632).

V. RATES OF RETURNS ON SAN GIORGIO'S INVESTMENTS

Cuneo (1842, pp. 307-311), an inspector of Genoa's archives, was the first to publish a long series of San Giorgio's *luoghi* market prices (P), dividends (D), and discounted dividends (D^a). The series for D starts in 1409 and ends in 1800; D^a starts in 1559 and ends in 1764; and P starts in 1559 and ends in 1880. P is an annual average. All three series are expressed in lire and soldi (1 lira = 20 soldi and 1 soldo = 12 denari) up to 1739 and in scudi after this date. Cuneo did not give precise archival references for the data. Cipolla (1952, Appendix) found a manuscript in the Library of the University of Genoa that essentially corroborated Cuneo's data, and was also able to recover data for P and D^a all the way back to 1522. Cipolla (Figure 2) used the sample 1522-1625 to calculate the long-term rate of interest on San Giorgio's *luoghi* and the discount rate applied to dividends.

For the long-term rate of interest, Cipolla applied the consol formula, D_t^a/P_t . Since D_t^a is clearly not constant, the consol formula makes sense if D_t^a is the best forecast of future D^a ; i.e., a random walk. For the discount rate, Cipolla (p. 258, footnote 4) relied on a 1597 report written by Doge Senarega who states that half of the dividends were paid in cash on the fourth year after dividend booking and the other half on the fifth year; on average 4.5 years after booking. As to the annual discount rate, Cipolla computed it applying the simple interest formula $(D_t - D_t^a) / D_t * 4.5$.¹⁴ The two Cipolla interest rates have been cited in important works such as Braudel (1995, pp. 700-01) and Homer and Sylla (1991, p. 119).

¹⁴ Heers (p. 170, footnote 2) disputes that the delay between dividend declaration and dividend payment is constant over a century and provides evidence for his argument. However, there is no time series on dividend delay.

Figure 1 plots the ratio of cash dividend to price, D_t^a/P , or what Cipolla labels as the long-term rate of interest; the period is from 1522 to 1739, using Cipolla's data up to 1625 and Cuneo's data from 1626 to 1739.¹⁵ But San Giorgio's investors received an uncertain rate of return that depended on an uncertain dividend and volatile price changes. The price series P is relatively flat from 1523 to 1570, rises sharply from 1571 to 1622, declines from 1623 to 1692, and is relatively flat from 1693 to 1739. Yearly rates of return, defined as $R_t = (D_t^a + P_{t+1} - P_t) / P_t$, are plotted in Figure 2. The R series appears remarkably stationary, which is confirmed by the absence of any spikes in its autocorrelation function. Autoregressive and/or moving-average time series models of R are rejected against the alternative of a model with a declining trend over the entire period, using traditional criteria of parsimony.¹⁶ The hypothesis of a structural break or breaks is rejected against the alternative of no structural model.

¹⁵ I have stopped in 1739 because in 1740 dividends and prices are quotes in a different unit of account.

¹⁶ The most parsimonious model is an ARIMA (0,0,0) with a constant of 5.48 (and a standard error of 1.03) and a negative time trend of -0.023 (and a standard error of 0.0081). The criterion of parsimony is based on two statistics: the Akaike information criterion and the Schwartz Bayesian criterion (Enders 1995, p. 88). Details of the estimation are available upon request.

Figure 1: San Giorgio's Cash Dividend-Price Ratio, 1522-1739

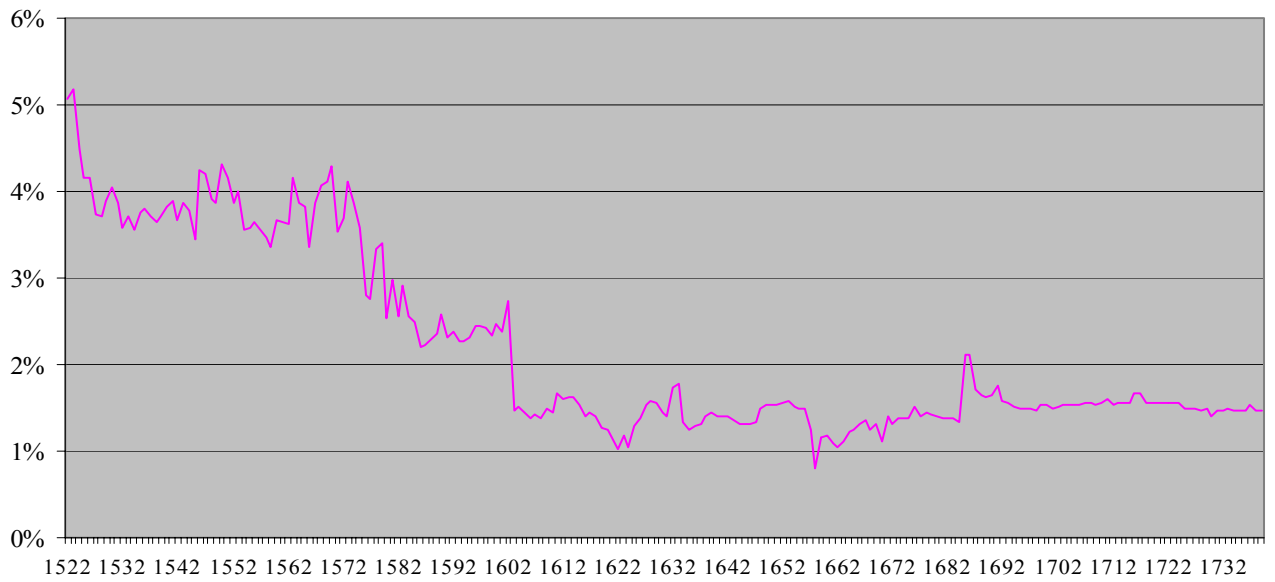


Figure 2: One-year rate of return on San Giorgio's luoghi, 1522-1739

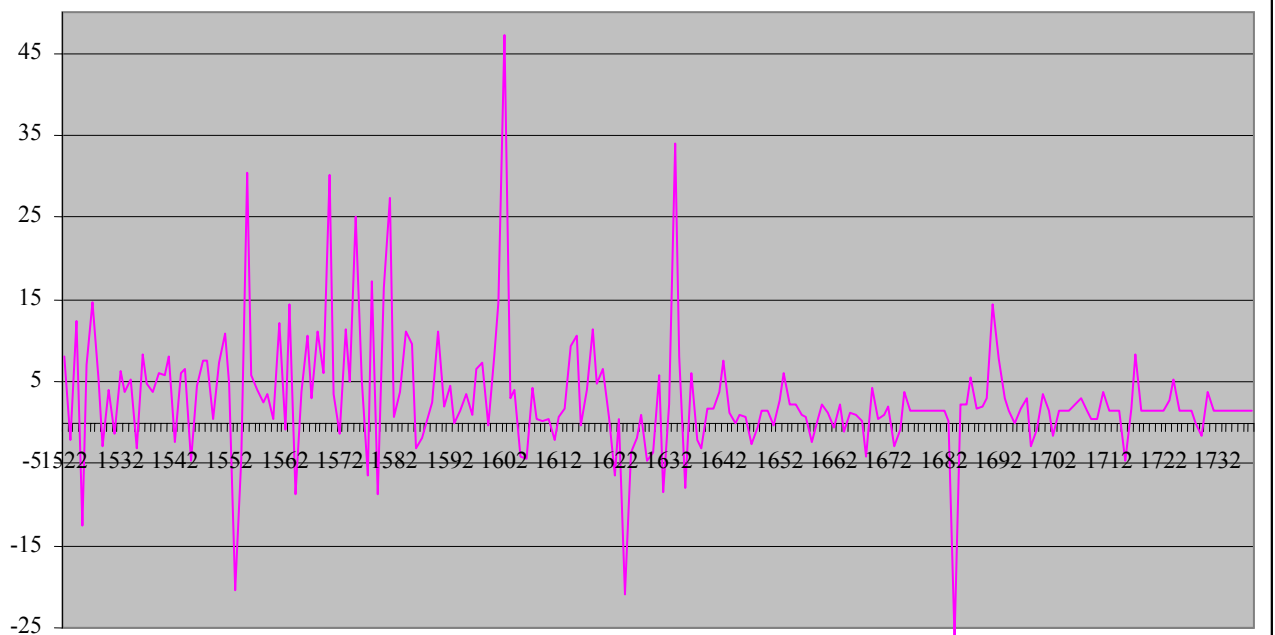


Table 1: Rates of Return on San Giorgio and Relative Contributions

Period	Average annual rate of return	Dividend contribution	Price appreciation contribution
1523-1570	4.23	3.88	0.35
1571-1622	5.90	2.31	3.58
1623-1692	0.67	1.40	-0.73
1693-1739	1.63	1.53	0.10

Average rates of return and the contributions of dividends and price appreciation to changes in R in the four mentioned periods are shown in Table 1. The dividend to price ratio declines significantly around 1570 and again around 1622 (see Figure 1) and is consistent with the general decline in rates of interest in 17th century Europe (Parker 1974, p. 539; Homer and Sylla, p. 140). Rising prices of *luoghi* were responsible for the historically high average returns in the 1571-1622 period; falling prices, and declining dividends, were responsible for the historically low average returns in the 1623-1692 period.

Cross-country comparison

With this knowledge, let us return to our main question of whether San Giorgio the lender was extracting extraordinary resources from the Republic the borrower. Since several governments in Europe had started borrowing in the financial markets in the 16th century to cover budget deficits (Parker, pp. 560-65), the natural way to answer the question is to compare returns on San Giorgio with returns or yields on equivalent investments outside Genoa. The underlying hypothesis is that differences yields, under the strong assumption

of perfect capital market integration, would reflect exchange rate and credit risks, and would be lowest in those regions with the lowest exchange rate and sovereign risk.

Independent evidence on capital mobility is qualitative but significant. We know that Genoa was an open economy, both in trade and finance, and that Genoese financiers were active if not dominant in important financial markets. They were the leading foreign lenders in Spain from the mid 1550s to the last bankruptcy of 1627 under Philip IV, and controlled the international money market linking specie delivery from Spain to the Low Countries.¹⁷ For Braudel (1992, p. 168):

By means of the dominant system of the Piacenza fairs, the capital of the Italian cities was all drained towards Genoa. And a multitude of small investors, Genoese and others, entrusted their savings to the bankers for modest returns. There was thus a permanent link between the finances of Spain and the economy of the Italian peninsula –hence the upsets which regularly followed the bankruptcies in Madrid ...At the same time in Venice itself, the Genoese, since they controlled the supply of silver which they delivered in vast quantities to the Zecca, had acquired control of currency exchange and maritime insurance.

Genoese capitalists had a critical role also in 16th century Naples, which was used by the Spanish Crown as a main financing center for the war in the Low Countries (Calabria 1991, pp. 5 and 104). *Juros* were issued in Naples, as in Castile, with the backing of fiscal revenues; by the second half of the 1500s an active market of these securities had developed. By 1563, Genoese investors owned almost a quarter of the entire Neapolitan public debt (Calabria, p. 115). As mentioned in the above passage, Genoese capital was dominant in Venice as well. Between 1617 and 1625, almost half of new Zecca deposits, totaling more than one million ducats, were bought by Genoese investors (Felloni 1971,

¹⁷ For Conklin, the extent of the control of the international money market by the Genoese was such to force Philip II to rescind in 1578 his earlier decision (1575) of debt repudiation. For the role of Genoese financiers in Spain under Philip II, see references in Conklin; for a brief but

p. 145). In sum, Genoese bankers and well-to-do Genoese knew about investment opportunities existing outside the Republic and were quite capable of exploiting them.

Calabria (Table 7) reports interest rate data on Neapolitan securities for most of the 16th century. Figure 3 plots the difference between interest rates on redeemable securities in Naples and current yields on San Giorgio from 1522 to 1598 (current yields rather than total returns are closer to Calabria's interest rates).¹⁸ Interest rates in Naples were consistently much higher than yields in Genoa: 5.35 percentage points, on average, over the 71-year sample period. How much of the difference can be accounted by exchange rate risk? Data on exchange rates are scanty and indirect; I employ two alternative methods. The first is to use the Da Silva (Tome II) data on prices of local monies, such as the Genoese soldo and the Neapolitan ducat, in terms of *écu de marc* at the Besançon fair.¹⁹ From the two money prices expressed in *écu de marc* one can compute the implied exchange rate between Genoese money and Neapolitan money. The Da Silva fair data start only in 1575; over the 24-year period 1575-1798, the Genoese soldo appreciates vis-à-vis the Neapolitan ducat by a quarter of one per cent per year, on average. Thus, the exchange rate change is a very small fraction of the interest rate differential. The second method is to approximate changes in the exchange rate by the differences in the loss of purchasing power of local monies measured in terms of specie, gold or silver. Calabria (pp. xiii-xiv) gives data on the loss of purchasing power of the

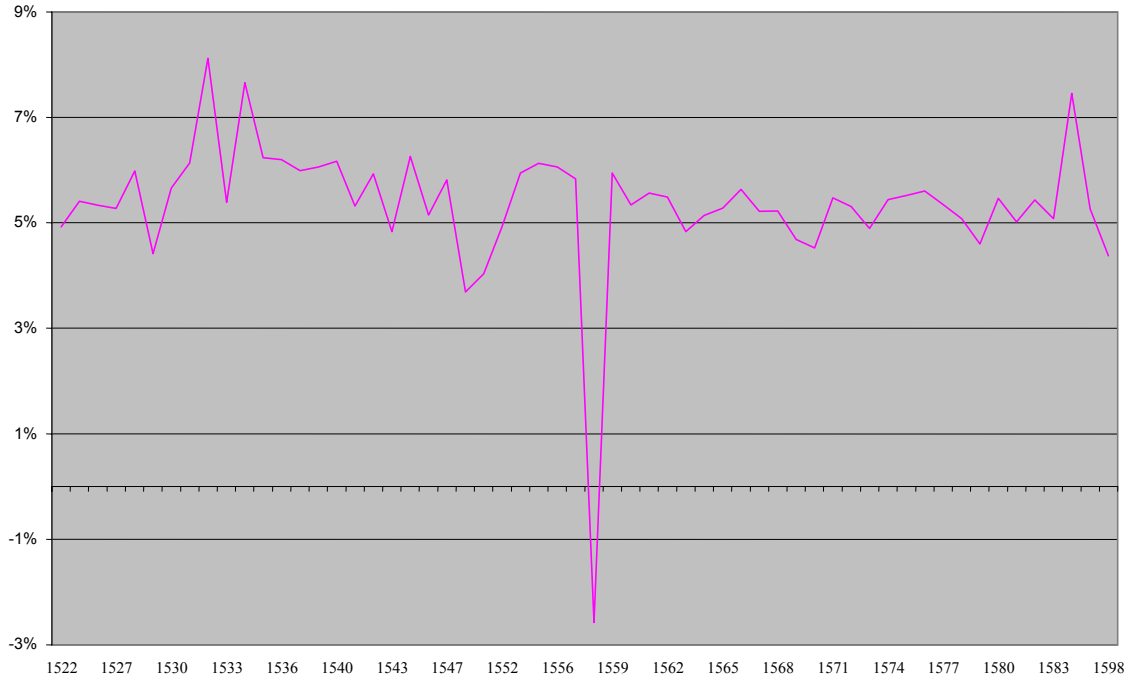
illuminating account spanning all the way to the 1627 bankruptcy, read Braudel (1992, pp. 164-168; 1995; pp. 500-504).

¹⁸ Some years are missing in Calabria's data set.

¹⁹ The *écu de marc* was an artificial and stable unit of account used at the Besançon fair (but not only) to price unstable local monies. Fairs met typically four times a year, at the beginning of February, March, August, and November; for more details on the unit of account, see Da Silva (pp. 290-293).

carlino, a subdivision of the ducat, in terms of silver content; Da Silva (p. 347) reports the purchasing power loss of the soldo in terms of gold content starting with 1500. For the

Figura 3: Difference between yields in Naples and Genova



carloino, the loss of purchasing power for the period 1522-1798 averages to 0.30 per cent per annum; for the lira, the average loss, using the entire 16th century, is 0.39 per cent. There is very little in the data to suggest significant long-run changes in the exchange between Genoese and Neapolitan monies.

Since the evidence excludes large exchange rate risk, differences in interest rates between Naples and Genoa are consistent with differences in credit risk. Naples was an extension of the Crown in Spain and carried comparable credit risk. Although securities issued and traded in Naples were not included in Philip II's bankruptcies, the market remained edgy about the possibility of default (Calabria, pp. 108-109). Market segmentation, or a mix of differences in credit risk and market segmentation, is the alternative explanation of the large interest rate differential.

The literature acknowledges that Genoese long-term interest rates were low in relation to virtually all financial centers, with the exception of the Low Countries (Homer and Sylla, p. 138; Parker, pp. 539-40). The preferred explanation is the one originally offered by Cipolla (pp. 264-66) for the period 1570-1620: Genoa, by exploiting its privileged financial relationship with the Crown, became the epicenter of American gold and silver inflows that, in turn, were re-exported to the rest of Europe. The specie inflows expanded the supply of money and lowered interest rates. The assumptions underlying this explanation are that markets were segmented and that lower interest rates in the money market translated in lower long-term interest rates, which are more sensitive to inflationary expectations.²⁰ The problem with this explanation is that Genoese long-term interest rates were systematically lower than other interest rates, before 1570 and after 1620. The noted exception were interest rates in the United Provinces in the 17th

century, where creditors had a degree of protection against debt repudiation similar to Genoa:

The key to the healthy public credit of the United Provinces lay in the fact that the chief investors ran the government. After 1572, the local estates of each province in revolt against Spain took over responsibility for raising money to pay for the war...The estates imposed new indirect taxes ... and sold life and redeemable annuities in return for cash... (Parker, p. 572).

The fact that the lowest interest rates were achieved in two different economic environments that shared equivalent institutions with regard to creditors' protections further corroborates the main theme of this article: the nexus between debt and interest rates through a mechanism that protects creditors against the risk of debt repudiation.

VI. CONCLUSIONS

San Giorgio was structured to protect creditors' rights and to reduce the risk that the Republic of Genoa might repudiate its debt. The aims and governance of this institution are consistent with those models of debt that predict positive equilibrium lending if lenders can impose big penalties on debtor. They are also consistent with models that the debtor is able to shift onto creditors part of the risks from bad events like wars and famine. In the absence of information asymmetry, the lender can differentiate between excusable acts of partial or complete default from inexcusable ones. San Giorgio was a forgiving lender, on the whole.

San Giorgio shareholders enjoyed low credit risk and their returns on capital were lower, on average, than returns on comparable foreign assets for which creditors' protection mechanisms were lacking. This conclusion is based on the strong assumptions

²⁰ Cipolla's explanation is repeated by Braudel (1992, pp. 166-67) and Homer and Sylla (p. 120).

that markets were integrated in the 16th and 17th century and that exchange rate risk was of secondary importance. The marshaled evidence indicates that Genoese capitalists were extremely active in many important financial centers, and that exchange rate risk was modest between Genoa and Naples in the 16th century. The conclusion that differences in credit risk were important in explaining differences in long-term interest rates has not been sufficiently emphasized by the literature.

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