FUNDING EMPIRE: RISK, DIVERSIFICATION AND THE UNDERWRITING OF EARLY MODERN SOVEREIGN LOANS[*]

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Abstract: Lending to early modern monarchs could be very profitable, yet highly risky. International financiers unlocked the excess returns in sovereign debt markets by parceling out the risk and transferring it to downstream investors in exchange for financial intermediation fees. We link two sovereign loans to Philip II of Spain to a downstream Genoese partnership. After examining the performance of the loans through the 1596 bankruptcy and its ensuing settlement, we conclude that the risk diversification scheme used by international bankers worked. Shares in sovereign loans were held within highly diversified portfolios, enhancing their returns in normal times and not posing excessive risks when caught in a default.

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1. Introduction

At the dawn of sovereign lending, the relationship between princes and their bankers was crucial. Edward III's failure to repay his debts bankrupted the Florentine families of the Peruzzi and the Bardi. The Medici Bank's many woes in the late fifteenth century were precipitated by ill-fated loans to the Lancastrian side in the Wars of the Roses.[1] Charles V famously bribed the electors of the Holy Roman Empire with a loan from Jacob Fugger the Rich, who also refused to cash the bills of exchange supplied by Charles' main contender.[2]

A large literature has focused on the effects of sovereign defaults on the prominent international bankers who risked their wealth (and sometimes their lives) on a monarch's whim or good fortune.[3] Most of this literature is written as if loans were extended directly by wealthy financiers, writing large cheques to sovereigns at their discretion. In actual fact, bankers would seldom offer a loan using only their own capital. Rather, much as modern banks do, they would tap a variety of financing sources, including demand deposits and the sale of shares in the sovereign lending ventures. These arrangements enabled them to supply much larger loans than their own resources could allow, while at the same time limiting their exposure and spreading the risk among their customers and equity partners.

In this paper, we reconstruct the chain of financing of two large sovereign loans to Philip II of Spain. Using archival documents from both the king's treasury and from

[1] See De Roover (1966), still the classic account on the Medici Bank.

[2] Parker (1999, 121).

[3] For some classic examples, see Carande (1987), De Roover (1966), Braudel (1966), Reinhart and Rogoff (2009). Notable exceptions are Maddalena and Kellenbenz (1986) and Neri (1989).

Genoese banking families, we document the terms that international bankers negotiated with the king in Madrid, and then trace some of the ultimate risk-bearers to a partnership of merchants back in Genoa. Since the two loans were caught in Philip's fourth bankruptcy in 1596, we are also able to explore how the losses were apportioned, and what the impact of the default on the balance sheets of each participants was. The Genoese system for financing and arranging short-term loans effectively spread the risk from lending to capricious monarchs. Complete ruin as a result of a sovereign debt crisis was unlikely as a result of diversification of risk at the level of the final investors. This would even have been true in scenarios that are worse than the ones that actually transpired.

In previous work, we examined international loans to Philip II. We obtained each of the 435 short-term debt contracts signed between the king and his bankers from 1566 to 1598 from the Archive of Simancas. We then constructed a database capturing every single clause in the contracts, and reconstructed the agreed cash flows. Based on these data, we concluded that Castile's fiscal position was sustainable throughout Philip's reign, and that the defaults that fell within our period of analysis were temporary liquidity crises (Drelichman and Voth 2010). We also explored the incentives that governed the relationship between the king and his lenders, finding that repayment was enforced through a network of lenders. This network – a private-order institution, in the parlance of Greif (2006) – wielded considerable market power. In good times, the king serviced his loans; after each default, he came back to the negotiating table as soon as his fiscal position allowed (Drelichman and Voth 2011a). Lending to the king was profitable – the average short-dated loan generated returns that were higher than the opportunity cost of

funds (Drelichman and Voth 2011b). Much of the lending was accompanied by contingent clauses. These allowed the king and the bankers to effectively share the risk of adverse fiscal events (Drelichman and Voth 2011c).

In this paper, we move from the profitability of individual loans brokered by international bankers to the profitability of lending to the king of Spain for the final investor. We investigate the chain of financial intermediation that linked the king to investors small and large throughout Europe, who ultimately bore the risks. To do so, we rely on two account books from Genoese merchant families preserved in the Doria Archive of Genoa.[4] They document the purchase of participations in two large loans to Philip II, and the subsequent performance of these investments during the 1596 default. For the individuals in question, these loans constituted a small part of highly diversified portfolios. In consequence, the bankruptcies had only a minimal impact on the overall performance of the partnerships. International bankers were successful in effectively spreading the large risks of lending to the Spanish crown. Multiple layers of financial intermediation parceled out the many loans that underwrote Spanish power, and a large number of investors benefitted from the high returns available from lending.

We proceed as follows. Section 2 provides a short historical primer on Castilian debt instruments and on debt crises. Section 3 gives a detailed description of two loan contracts between the king and international bankers. Section 4 shows how the bankers then spread their risk, selling shares in the loans to downstream investors in Genoa. Section 5 analyzes the impact of the 1596 default on all the parties involved, and section 6 concludes.

[4] One of these books had been discussed by Felloni (1978), while the other one is not mentioned in the literature. Prior to our work, however, it was not possible to link these documents to the specific loans to Philip II, or to compare their relative performance.

2. Historical background

Castilian debt instruments

Philip II relied mostly on two types of debt instruments: long-term bonds backed by stable sources of revenue (*juros*) and short-term unsecured bank loans (*asientos*). *Juros* were either perpetual or lifetime bonds. Their issuance was subject to a limit set by the *Cortes*, the representative assembly of the city of Castile, which designated the revenue streams that could be used as their collateral. This limit was kept well below the fiscal capacity of the state, which made *juros* very safe investments. Their interest rates exhibited a slow secular decline throughout the sixteenth century; during the reign of Philip II, most *juros* yielded between 5% and 7.14%. The bonds were transferrable with permission from the Crown, which charged a fee to do so.[5]

Juros were the cheapest source of funds for the Crown, and at any given time they constituted between 75% and 90% of total royal debt.[6] They nonetheless suffered from some important drawbacks. Finding investors with sufficiently deep pockets and long horizons on short notice could be problematic, as the Crown did not have a financial network of its own. As the sixteenth century progressed, the domestic capital market became more and more saturated with the bonds, forcing the king to place them abroad through intermediaries. More importantly, once the debt ceiling was reached, the king had to seek permission from the *Cortes* to increase it. This inevitably led to protracted

[5] The study of *juros* is notoriously difficult, as the relevant archival sources are vast, disorganized, and uncatalogued. The most complete study to date is Toboso Sánchez (1987). See also Torres López and Pérez-Prendes (1963).

[6] Drelichman and Voth (2010).

negotiations and costly concessions. Finally, highly volatile revenues such as the remittances of American treasure could not be used to back perpetual bonds.

When issuing *juros* to satisfy financing needs was not practical, the Crown turned to *asientos*. First introduced during the reign of Charles V, these short-term unsecured loans were underwritten by Spanish and international financiers.[7] Their amounts, maturities, interest rates, and other terms and conditions varied enormously. Among the 435 contracts in our database, some are as large as 25% of yearly Crown revenue, while others are underwritten for seemingly trivial amounts. A large proportion of *asientos* were used to supply the battlefield needs of the Spanish armies throughout Europe, and hence they involved transfer services and foreign exchange operations. Short-term loans also served to supply the needs of the court in Madrid, and to pay for special projects like the building of the palace-monastery of El Escorial. Repayment was promised from every available revenue source, from the silver fleets to the sales taxes of various cities. The returns of *asientos* were sometimes enhanced by granting the bankers favorable treatment in other financial operations.[8]

Crises

Philip II suspended payments on short-term debt four different times during his reign. The first two episodes, in 1557 and 1560, affected debts granted by the Fugger and Welser families to Charles V. They were settled with the transfer of Crown assets, including the lucrative masterships of the military orders and the mercury mines at

[7] The most complete account on the asientos of Charles V is Carande (1987).

[8] For example, bankers could be allowed to export bullion in excess of the amount needed to fulfill their commitments, hence allowing them to profit from arbitrage across different markets. Another common concession was the ability to swap low-yield *juros* for high-yield ones.

Almadén.[9] Philip's own short-term borrowing began in earnest in the mid-1560s, relying mainly on a network of Genoese banking families. In Drelichman and Voth (2011a) we showed how this network created the incentives for the king to consistently repay his debts, combining market power with a cheat-the-cheater mechanism. The two further bankruptcies, in 1575 and 1596, happened in the wake of unusually adverse events – expensive military defeats and very low silver remittances. Because their triggers were outside the king's control and independently verifiable, these defaults were considered excusable, and bankers did not impose penalties on Castile once the situation was resolved (Grossman and Van Huyck 1988; Drelichman and Voth 2011c). [10]

We have elsewhere shown that Castile's defaults under Philip II were the result of temporary – if serious – liquidity crises, and that the long-run fiscal situation was sustainable throughout (Drelichman and Voth 2010). Consistent with this, the king suspended payments on his short-term unsecured debt, while continuing to service the *juros* that were backed by stable revenues. The defaults, therefore, never affected more than 25% of outstanding debt (the 1575 ratio), and in the case of 1596 happened on barely 10% of total liabilities. Settlements were negotiated very quickly, even for modern-day standards. The 1575 bankruptcy was resolved in two years, and the 1596 one in less than 12 months. All lenders were treated equally and capital losses were moderate.[11] Lending resumed immediately, and the terms and conditions of the new loans

[9] A detailed account of the 1557 suspension and the period running up to the 1560 one can be found in Rodríguez-Salgado (1988).

[10] The 1575 default was preceded by a large increase in military expenditure and an unexpected revenue shortfall due to unusually poor treasure fleets. The 1596 default was similarly triggered by increase expenditures following British and French attacks.

[11] The 1575 bankruptcy concluded with an average capital loss of 38% for lenders; the 1596 one saw a haircut of 20%. The Argentine default of 2001 inflicted losses in the order of 80%.

were statistically indistinguishable from those prevailing before the suspensions (Drelichman and Voth 2011c).

The 1575 bankruptcy is perhaps the most studied event in Castilian financial history.[12] It affected nearly two years' worth of revenue, and put the Genoese lending system to a stringent test. In some accounts, the default is even held directly responsible for Castile's military setbacks in the Netherlands.[13] The pressing need to find short-term resources triggered a feverish round of political bargaining between the king and the *Cortes*, which concluded with the first major tax increase of Philip's reign.[14] In the end, the large military expenditures that helped trigger the default waned as Castile reduced the intensity of its warfare, while silver remittances returned to their previous volume. The reversal of the liquidity shocks, together with the capital reductions and the tax increases, provided the king with ample fiscal breathing room that would last for almost a decade.

The payment stop of 1596 was much less dramatic. According to Castillo (1972), the suspension decree was hastily promulgated in the mistaken belief that the Crown would have to make disbursements in excess of 14 million ducats in the very near term.[15] The date of the suspension, November 29 1596, was just days before payments for over two million ducats came due. As was common practice, royal accountants conducted a full audit of outstanding debts after the decree; to their surprise, they found that the

[12] See, among many others, Lovett (1980, 1982), De Carlos Morales (2008), and the online appendix to Drelichman and Voth (2010).

[13] Conklin (1998) argues that the bankers' refusal to transfer funds to Flanders was a punishment mechanism that resulted in the mutiny of Spanish troops and the subsequent sack of Antwerp. In Drelichman and Voth (2011a) we present detailed historical and archival evidence contradicting this view.

[14] For a detailed description of the negotiations and outcome of the Cortes of 1576, see Jago (1985).

[15] Sanz Ayán (2004) also echoes this view.

estimates were overblown by a factor of two, and that outstanding *asientos* were slightly over 7 million ducats.[16] This represented about two thirds of annual revenue, an easily manageable sum for the royal treasury, especially after the arrival of the very rich fleet of 1596. As a result, the *Cortes* were not asked for further tax increases, and a settlement was reached in short order. Most of the capital was repaid in good quality juros, with the only haircut resulting from an interest rate reduction in a portion of the outstanding bonds. Bankers accepted a capital loss of 20%, and lending resumed once again.[17]

3. Two *asientos* from 1596

In this section we turn our attention to two contracts jointly underwritten by Agustín Spinola and Nicolás De Negro in February and July of 1596.[18] Spinola and De Negro were members of two prominent Genoese banking families. The Spinola were the largest lenders to Philip II, supplying over 16 million ducats between 1566 and 1600. They accounted for over 20% of total short-term borrowing over the period.[19] While the scale of lending by the De Negro was more modest, amounting to some 770,000 ducats in total, they were also among the leading business families in Genoa.[20] Agustín and Nicolás – to

[16] Early modern states had a very incomplete picture of the state of their finances at any given time. Accounting methods were not conducive to the construction of consolidated budgets and financial statements. The only comprehensive descriptions of the fiscal situation of sixteenth-century Castile based entirely on primary data are provided by the audits ordered after the bankruptcies.

[17] The actual loss might have even been lower. As the final details of the settlement were negotiated, the consortium of bankers agreed to transfer 600,000 *ecús* to Flanders in exchange for what amounted to an annualized yield of 89%. This extremely high rate could have only been offered in compensation for something else – possibly accepting the 20% haircut on outstanding loans. (Archivo General de Simancas, Contadurías Generales, Legajo 93).

[18] These contracts are located at the Archivo General de Simancas, Contadurías Generales, Legajo 92.

[19] In Drelichman and Voth (2011a), we document and discuss the concentration of lending to Philip II and the role of the Spinola family.

[20] We report cumulative sums actually disbursed by the Spinola and De Negro families, rather than contracted ones. For example, in the second contract we discuss in this section, Spinola and De Negro

whom, in accordance with the loan documents, we refer by their Spanish names – lived permanently in Madrid, and were in charge of managing the financial operations their families entered into with the king. This included negotiating new loans, arranging the disbursements promised in Madrid, and issuing the necessary letters of exchange to authorize disbursements abroad. They were also responsible for collecting the repayments, which required skill at navigating the royal bureaucracy and trustworthy agents in the many places were treasurers in charge of different royal revenue streams were stationed. Finally, the bankers had to obtain the necessary permits to remit the proceeds back to their families in Italy or wherever else they were needed, and had to ensure that the bullion was delivered to a port of exit and shipped safely.

The first *asiento* was concluded on February 24, 1596. Spinola and De Negro first agreed to deliver 90,000 *ecús* in Milan. Half of the amount was due immediately, and payable upon presentation of the letters of exchange by the royal officials. The other half would be disbursed in three equal payments in the months of April, May and June. In addition, the bankers promised to deliver 112,500 ducats in Madrid, in six equal payments. The first two payments had already been made on January 1st and February 1st 1596; the remaining four installments were to be paid once a month.[21] The contract valued the Italian *ecús* at 404 *maravedíes* each, which represented a 1% premium over their gold content of just under 400 mrs (1.067 ducats). The combined principal of the contract therefore amounted to 209,460 ducats.

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agreed to lend over one million ducats, but only disbursed 127,000 before the payment stop of 1596 put a premature end to the contract. We use the latter amount in our calculations. The complete methodology used in obtaining these figures is discussed in Drelichman and Voth (2011b).

[21] It was not unusual for disbursements and payments to predate the actual signing of an *asiento*. The contracts carried the date on which they were signed by the king. Bankers and royal officials, however, might have come to an agreement weeks or months earlier, and several of the promised cash flows might have already happened by the time the documents were formally signed.

The king promised to repay the capital using the proceeds of the *tres gracias* from the years 1597 and 1598, as well as those from the ordinary and extraordinary *servicios*.[22] The contract stipulated that the proceeds of these taxes would be disbursed to bankers in six installments, starting in July of 1598, and every four months thereafter. The interest rate would be one percent per month, not compounding; each capital repayment would also be accompanied by the accrued interest on that part of the capital only. The first installment would also include an extra two months of interest. As additional compensation, the bankers were allowed to swap *juros* worth up to 485 ducats for other bonds of their choice. This allowed them to purchase non-performing bonds at bargain prices in the open market, exchange them at the treasury for choice securities, and net a profit that could not have been much less than the face value of the *juros*.[23]

The contract also included a number of additional provisions. First, the bankers were allowed to export bullion for the entire amount of the principal. Although 112,500 ducats were to be delivered in Castile, the bankers would be raising the necessary funds outside the kingdom, and would hence need to export the repayments to satisfy their own liabilities. The bankers were also given permission to export an additional 60,000 ducats to Portugal. These export licenses were valuable, as they allowed their holders to arbitrage between different currency markets. Bankers could sell them to other businessmen. If a license went unused, the treasury would on occasion buy it back.

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[22] The *tres gracias* were three income streams (*cruzada, subsidio*, and *excusado*) that the Church collected on behalf of the Crown, and forwarded to the royal treasury. The *servicios* were direct taxes approved by the *Cortes*.

[23] Since this transaction would have taken place in March of 1596, the bankers would have collected the entire yearly interest of the new *juro* in November of 1596, although they would have held it only for 9 months. This would have increased the present value of the operation from 485 to 502 ducats. The small amount of this transaction suggests that the bankers already had a non-performing *juro* worth exactly 485 ducats in hand, and took advantage of this *asiento* to get rid of it.

Spinola and De Negro were also given the option of collecting their repayments from alternative income streams. In particular, they were allowed to choose to be repaid from the fleets of 1596 and 1597. This would likely have allowed them to start collecting a few months earlier, at the cost of forfeiting the extra 2% on the first installment. Alternatively, the bankers could request that repayment be made in the form of lifetime *juros*. This would have allowed them to receive payment almost immediately, but at a higher cost.[24] The contract also allowed bankers to opt for perpetual *juros*, but they would have to wait until the originally promised repayment dates to collect them. This last option would only be valuable if, for some reason, the original income streams from where the repayments were promised failed to perform. Finally, the contract allowed the bankers the use of one or two royal galleys to convey the necessary bullion to Italy.

Table 1 shows the agreed cash flows from the asiento of February 24. All the disbursements occur in the first six months of the contract and, with the exception of the small profit from the *juro* operation, no repayments are promised until July of 1598, a full 30 months after the beginning of the contract. In laying out the cash flows, we abstract from the several options that the bankers could exercise, such as choosing different repayment streams or convert part of their credits into *juros*. Most of these would have resulted in some small variation to the profitability of the contract. The actual sign and magnitude of the change depended on the conditions of the debt and money markets at the time, which are unobservable to us. In order to produce a conservative estimate of rate of return, we also omit the profit from the license to export bullion to Portugal.[25]

[24] For accounting purposes, *juros* were valued as perpetual streams. Lifetime bonds, however, stopped performing at the death of their holders, and hence had a lower present value than perpetuities.

[25] This would have likely yielded between one and two percent of the 60,000 ducats under license, and hence perhaps enhanced the overall profitability of the contract in the order of 0.2% to 0.4% per year,

Table 1: Agreed cash flows from the asiento of February 24, 1596

Month	Disbursements	Repayments	Net cash flow	Description
Jan-96	18,750		-18,750	First Madrid disbursement (pre-signing).
Feb-96	18,750		-18,750	Second Madrid disbursement (pre-signing).
Mar-96	66,688	502	-66,186	Third Madrid disbursement; first Milan disbursement; profit from the *juro* operation.
Apr-96	34,729		-34,729	Fourth Madrid disbursement; second Milan disbursement.
May-96	34,729		-34,729	Fifth Madrid disbursement; third Milan disbursement.
Jun-96	34,729		-34,729	Sixth Madrid disbursement, fourth Milan disbursement.
.	.	.	.	
Jul-98		46,081	46,081	First repayment plus interest (including the one-time payment of two months of additional interest).
.	.	.	.	
Nov-98		46,779	46,779	Second repayment plus interest.
.	.	.	.	
Mar-99		48,176	48,176	Third repayment plus interest.
.	.	.	.	
Jul-99		49,572	49,572	Fourth repayment plus interest.
.	.	.	.	
Nov-99		50,969	50,969	Fifth repayment plus interest.
.	.	.	.	
Mar-00		52,365	52,365	Sixth repayment plus interest.

Had the contract been honored as originally signed, the bankers would have realized a yearly rate of return of 10.4%.[26] If they chose to exercise some of the built-in options – for example, requesting payment from the fleets while forfeiting the extra months of interest – the returns could have climbed to 11.7% per year. The bankruptcy decree of November 1596 came once the bankers had disbursed the entire principal, but had not yet received a single repayment. In terms of timing, this is the worst scenario that

depending on the timing and actual yield of the transaction. Since the actual return would have depended on the relative conditions of the Spanish and Portuguese money markets, which we do not observe, we refrain from including this additional profit in our calculations.

[26] We calculate the profitability of asientos using the modified internal rate of return (MIRR), with a finance rate of 5% and a reinvestment rate of 7.14%. For a detailed discussion of the properties of the MIRR and a justification of our choice of parameters, see Drelichman and Voth (2011b).

a banker could find himself in. The settlement of 1597 gave the bankers juros worth 80% of the outstanding debt. The promised returns evaporated. Evaluated at its terminal date of March 1600, considering the capital loss and adding the yield of the *juros*, the operation netted a loss of 1.08% per year.[27]

The second asiento was signed on July 26, 1596. This was a much larger contract. Spinola and De Negro agreed to deliver one million *ecús* of 57 plaques in Flanders in 14 payments. The first 13 payments were to amount to 65,000 *ecús* each, and the fourteenth would have consisted of the remaining 155,000 *ecús*. The disbursements were to start on September 1 1596, and continue at a monthly frequency. For accounting purposes, the Flemish *ecús* were being valued at 1.088 ducats each, although their theoretical gold content only amounted to 0.977 ducats. The contract thus provided for a potential profit of 10.5% in the exchange operation alone, although the actual profit would have depended on the market value of the Flemish *ecús*.

The king agreed to repay a total of 1,088,267 ducats of principal, which represented 1,000,245 *ecús* at the agreed conversion rate.[28] As with the February contract, interest would be added to each installment at the time of repayment. Because of the size of the loan, the king had to tap several revenue sources to repay it. Thus, he promised the bankers:

1) 75,133 ducats from the royal direct and indirect taxes corresponding to the year 1595, and payable by the end of 1596.

[27] Because the MIRR incorporates the opportunity cost of funds, its value depends on the terminal date of the contract. We use the terminal date originally specified in the contract to calculate the losses sustained in the restructurings. The reason is that the bankers expected to have their funds tied up until that time, and would have made their original investment decisions based on that terminal date. This also ensures comparability between the expected and actual rates of return.

[28] The additional 245 *ecús* are a rounding error due to the specific unit of account used.

2) 75,133 ducats in the taxes owed by the city of Seville, and charged on the goods brought by the fleet, also payable by the end of 1596.

3) 75,000 ducats from the proceeds of the goods of Cardinal Don Gaspar de Quiroga.[29]

4) 466,667 ducats from the fleet expected between September and November of 1596.

5) 263,000 ducats from the proceeds of the *tres gracias* and the *servicios*, in three installments beginning in July 1598 and continuing every four months.

6) 133,333 ducats from payable in the same fashion as the previous clause, but in 1599.

The yearly interest rate applied to each payment was to be 12% (simple, not compounding), calculated from July 1596. Payments from the *tres gracias* received an extra month of interest, while payments from the *servicios* received an extra two months of interests, and an additional two months for not otherwise specified "costs". The bankers were given broad authority to collect their payments from alternative revenue streams; however, they could only convert up to 100,000 ducats of repayments into *juros*, and another 100,000 ducats from the 1596 payments into silver from the Indies. The king also provided fortified galleys for the transportation of the bullion. Table 2 shows the agreed cash flows from the asiento of July 26.

[29] Don Gaspar de Quiroga y Vela was a towering figure in the Spanish ecclesiastical hierarchy. He held its two most coveted posts, those of Inquisitor General and Archbishop of Toledo. He enjoyed large rents and possessions, many of which reverted to the Crown upon his death in November 1594. This contract shows that the Crown did not transfer them entirely to the new Archbishop, but chose to use part of them to satisfy its financial obligations.

Table 2: Agreed cash-flows from the asiento of July 26, 1596.

Month	Disbursements	Repayments	Net cash flow	Description
Sep-96	63,488		-63,488	Monthly disbursement of 65,000 *ecús*, valued at their gold content of 0.977 ducats.
Oct-96	63,488		-63,488	Monthly disbursement.
Nov-96	63,488	485,333	421,845	Monthly disbursement; repayment from the fleet (clause 4) plus four months interest.
Dec-96	63,488	236,530	173,042	Monthly disbursement; repayments from clauses 1 to 3 plus 5 months interest.
Jan-97	63,488		-63,488	Monthly disbursement.
Feb-97	63,488		-63,488	Monthly disbursement.
Mar-97	63,488		-63,488	Monthly disbursement.
Apr-97	63,488		-63,488	Monthly disbursement.
May-97	63,488		-63,488	Monthly disbursement.
Jun-97	63,488		-63,488	Monthly disbursement.
Jul-97	63,488	99,940	36,452	Monthly disbursement; first installment from clause 5, plus interest.
Aug-97	63,488		-63,488	Monthly disbursement.
Sep-97	63,488		-63,488	Monthly disbursement.
Oct-97	151,395		-151,395	Final disbursement of 155,000 ecús.
Nov-97		103,447	103,447	Second installment from clause 5, plus interest.
.	.	.	.	
Mar-98		106,953	106,953	Third installment from clause 5, plus interest.
.	.	.	.	
Jul-98		56,000	56,000	First installment from clause 6, plus interest.
.	.	.	.	
Nov-98		57,778	57,778	Second installment from clause 6, plus interest.
.	.	.	.	
Mar-99		59,556	59,556	Third installment from clause 6, plus interest.

This asiento is very different from the one signed on February 24. A large proportion of the repayments are stipulated early in the life of the contract – in November and December 1596. In fact, if those two repayments had actually taken place, the bankers would have had a cash surplus until September 1597. There are only two time periods where the bankers would have found themselves in the red: September-October 1596, and between October 1597 and March 1599. In effect, this contract can be thought of as consisting of three components:

1) A relatively small loan of 127,000 ducats disbursed in September-October 1596, and repaid in November 1596.
2) A large transfer to Flanders, for which the king pre-pays in November and December 1596 (with an additional disbursement in July 1597), and which the bankers actually carry out between November 1596 and August 1597.[30]
3) A loan of some 215,000 ducats in September-October 1597.

It is not possible to separate the compensation for each of the three components, as they are not identified in the contract itself. The profit is nonetheless all backloaded, as the bankers swing decisively into surplus with the last six repayments. The options built into the contract only allowed the bankers to switch the source of the repayments; since they did not affect their timing or amount, this would not have affected the rate of return. Had the contract been honored as agreed, the annualized rate of return would have been 17.6%.

This contract mirrored a number of other loans, which called for large repayments in the months of November and December 1596. Indeed, it is quite likely that the time of the payment stop was dictated by this fact.[31]. As the next section illustrates, the bankers managed to collect part of the first payment prior to the November 1596 suspension, and recovered 80% of the remaining amount in 1597. When evaluated at the terminal date of March 1599, the operation resulted in an annualized loss of 4.82%.

[30] This contract illustrates how both parties to the contract bore risks. The bankers were cash-flow positive for 10 months, as they gradually transferred to Flanders the large sum the king had given them upfront. Had Spinola and De Negro gone bankrupt, the king would have lost money.

[31] The king had received net inflows for 3.1 million ducats between January and October 1596. In November and December, he was expected to have net outflows of 1.5 million ducats. The payment stop, declared just before the end of November, froze these disbursements.

4. Parceling out the risk

Families like the Spinola regularly entered into *asientos* worth hundreds of thousands of ducats. Even if they had had the financial wherewithal to remain liquid whenever the king declared a payment stop, lending such enormous amounts to a single borrower may not have been a good business strategy. In Drelichman and Voth (2011b), we calculate the excess return from *asiento* lending. After losses from the bankruptcies and after the opportunity cost of funds, it amounted to 3.16%. While such a return compared favorably to other available financial instruments, and even to some commercial ventures, it came with the considerable risk of extended periods during which loans were not serviced. The solution adopted by international bankers was to sell shares in their *asiento* ventures in exchange for a fee. This allowed them to spread the risk involved among other investors while fine-tuning their own exposure. Parceling out the risk was so central to the asiento system that most large contracts allowed bankers a few months of lead time before the main disbursement. This allowed them to tap the European payment fairs for the needed funds.[32] In some cases, the king even advanced "working capital" to the bankers, providing them with a sum of money that could be used to round up prospective investors.[33]

While the original contracts preserved at the Archive of Simancas only identify the main underwriters, it is possible to find shares of Spanish asientos in the account books of merchant families based in Genoa. One such book is the *libro mastro* of a society formed

[32] For insights into the workings of the Italian payment fairs, see Pezzolo and Tattara (2008) and Marsilio (2008).

[33] For example, on July 1 1572, the king entered into a contract with Pablo de Grimaldo for 800,000 ducats, to be delivered in October of 1573. The agreed repayment structure shows that the king was to make the first repayment of 125,000 ducats in July 1573, three months before the banker made his initial disbursement. This practice was not uncommon in large contracts, particularly those involving international transfers.

by the brothers Lazzaro and Benedetto Pichenotti, and Gio Girolamo Di Negro, preserved in the Archivio Doria at the University of Genoa.[34] The Pichenotti belonged to a well-known merchant family, which nonetheless never lent directly to the king of Spain. Gio Girolamo Di Negro was a member of the De Negro family that participated in the *asientos*, although his name is never found in the contracts themselves.[35]

The Pichenotti – Di Negro society purchased shares in both the *asientos* described in the previous section. They contributed 5,265 ducats and 4,500 *ecús* to the one concluded on February 24, and 30,000 *ecús* to the one signed on July 26. Half of the capital was supplied by the Pichenotti brothers, and the other half by Di Negro. The society would make the disbursements and collect repayments under the same conditions that the Spanish bankers had stipulated with the king. The intermediation fee payable to the Spanish bankers was 1%.

The suspension decree was published on November 29 1596. At that point Spinola and De Negro had not yet collected any repayments from the February 24 *asiento*. They nonetheless forwarded 12,200 ducats to the Genoese society on account of a partial repayment of their share in the July 26 contract. This indicates that the king had already made a partial repayment himself, even though none was expected before the end of November. The most likely reason for this is that the fleet must have arrived a month earlier than expected, hence allowing the bankers to collect the 466,667 ducats that had been promised from that source before the payment stop.[36]

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[34] Archivio Doria; Inventario Doria 193. This book was first identified by Felloni (1978). Our description closely follows his account.

[35] When referring to bankers based in Genoa, we use the Italian spelling of their names.

[36] The *asientos* at Simancas only allow us to observe the promised cash flows, not the actual ones. The Pichenotti – Di Negro account book thus provides a rare window into what actually transpired after the contracts had been signed. This example makes it clear that deviations from the letter of the contracts did

The default froze all further cash flows on the Pichenotti – Di Negro participation. The situation began to thaw with the settlement of November 1597, in which the bank debt was converted into *juros*. Two thirds of the debt was repaid in 7.14% bonds, which largely traded at par. The remaining third was repaid through a bond swap, reducing the interest rate on *juros* acquired or already held by the bankers, and entailing a net loss of 20% of the original capital of the outstanding *asientos*. The Spanish bankers collected the bonds corresponding to the settlement, calculated the share of principal and interest corresponding to the Genoese society, deducted their fees, collection and conveyance expenses, and forwarded the remainder to Genoa using the same mix of assets they had received from the king. Paying creditors in this fashion was known as the provision of *la misma moneda* – literally, "the same currency". Since bankers received bonds in the settlements, requiring them to pay their creditors back in cash would have created serious liquidity problems for them. The arrangement of *la misma moneda* allowed international lenders to forward the bonds downstream to the smaller investors that had supplied them with capital. This applied regardless of whether investors had purchased specific shares in an *asiento*, or just made a demand deposit with the banking house.[37]

The accounts of the Pichenotti – Di Negro society were finalized and closed in 1600. By that point, with no more credits outstanding, they had received a total of 38,741 ducats net of costs, in cash and bonds of different characteristics. This represented a loss

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not always harm the bankers – the early arrival of the fleet meant that they collected a portion of their debts earlier than expected, hence mitigating the impact of the bankruptcy.

[37] See Neri (1989) for an overview of the impact of the provision of *la misma moneda* on Genoese firms and individuals.

of 8.4% of their original capital.[38] Because the loss was spread over several years, however, the annualized rate of return was substantially less negative. While we do not observe the actual dates of every cash flow for the Genoese venture, we can exploit the fact that its investment was structured to mimic the Spanish *asientos*, whose cash flows we do know. After adding the one percent intermediation fee, Pichenotti and Di Negro obtained an annualized return of -1.32% for their share in the February 24 contract, and -5.19% for their participation in the July 26 one.[39] Their overall (weighted) annualized return was thus -4.27%.

5. The impact of negative shocks on Genoese trading families

The true test of any risk-sharing system comes in bad times. The rhetoric during the bankruptcies was harsh enough. Bankers complained loudly to the king about how poorly he rewarded their loyalty.[40] Contemporary business commentators bemoaned the plight of the widows and orphans of Genoa.[41] Scholars such as Fernand Braudel assumed that the

[38] In the Pichenotti – Di Negro account book, the *ecús* are valued at the exchange rate agreed to between the king and the Madrid bankers, rather than at their metallic content. This suggests that the Madrid bankers did not pass through the profits obtained in the exchange operation.

[39] To obtain conservative estimates, we assume the intermediation fee was front-loaded.

[40] On December 22, 1575, Lorenzo Spinola wrote to the king, complaining that he had been enormously harmed by the suspension decree and reminding him of the many services and favors he had provided over the years. He then asks the king to make good on his promises because "the word of a king is a law" *[pues la una ley es la palbra de v.m. y me la dio de que esto se haria assi conmigo por mis muchos servicios y los que tengo de hazer]*. Instituto Valencia de Don Juan, Envío 22, Caja 33, TB 144.

[41] Writing in 1638, Venetian merchant Giovanni Domenico Peri described the effects of the 1627 banruptcy as follows: *"[…] oltre la rovina degli Assentisti, hanosi questi ritirato a dietro molti, che gli soccorevano di rivelantissime partite, e fra gli uni, e gli altri, sono restate esterminate molte ricche famiglie, e molte Vedove, e pupilli insiememente ridotti a miserabile povertà."* [in addition to the ruin of the bankers, several other financiers who provided them with funds exited the business. Between ones and the others, many rich families were exterminated, and many widows and orphans were at the same time reduced to miserable poverty] (Peri 1672).

suspension decrees were catastrophic events, periodically forcing a good portion of Europe's financial elite into personal ruin.[42]

In Drelichman and Voth (2011b), we showed that asiento lending was profitable on average over the long run, and for almost all participants. While the bankruptcies caused short-term losses on specific contracts, these were more than offset by high profits during normal times. Our result applied to the families that kept representatives in Madrid and dealt directly with the king. It is nonetheless possible that the bankruptcies had a stronger impact on those smaller financiers that supplied the international bankers with capital. We now explore this issue in more detail using a second document preserved in the Doria Archive of Genoa.

Gio Girolamo Di Negro – who partnered with the Pichenotti brothers to invest in the two ill-fated *asientos* described in section 3 – also kept his own master account books, as was customary. These *libri mastri* detailed all the assets, liabilities and profits or losses for the relevant period. The book covering the period between April 1596 and October 1598 is preserved in the Doria Archive, allowing us a window into the impact of the November 1596 default. [43] At the end of the period, in October 1598, Di Negro had not yet received the settlement payments corresponding to his participation in the *asientos.*[44] He recorded his participation in the society with the Pichenotti brothers as an asset worth

[42] Braudel alludes to the negative effects of the Spanish bankruptcies in several passages throughout *La Mediterranee*, writing, for example, "every time the state declared itself bankrupt, bringing contracts to a violent end, there were always some actors who lost, fell through a trap-door, or tiptoed away towards the wings." (Braudel 1966, 362-3).

[43] Archivio Doria; Inventario Doria 192.

[44] This is consistent with the society's book, which records the final settlement in 1600.

7,500 Genoese lire, and he also had another 1,116 lire invested in a different *asiento*.[45] The final balance sheet shows that Di Negro had total assets worth 96,252 Genoese lire. He turend a profit of 6,025 lire. Since these were earned over a period of 30 months, the annual profit was 2.4%. Di Negro was not doing particularly well by the standards of the time. Investing in long-term bonds would have netted him 7% or more, with little risk (but also less of a chance to receive the principal back anytime soon, or without a discount).[46] However, his poor performance overall must have stemmed overwhelmingly from his commercial ventures, which represented over 90% of his portfolio. More importantly, he was in no danger of financial ruin as a result of Castile's default. Had Philip II completely repudiated his debts, Di Negro would have lost less than 9% of his assets. Over the period covered in the account book, this would have translated into annualized excess losses of 3.5%. This result is consistent with our findings for the top-level bankers, and yields a powerful insight into the strength of the overall system. While the defaults of Philip II caused substantial losses, no link in the chain of financial intermediation was exposed to catastrophic risk when they occurred.

6. Conclusion

When does the repackaging and reshuffling of risk work? There are many reasons today to question the benefits of securitization. As the financial crisis of 2008-10 made clear,

[45] This contract is identified as the *"assiento del millione"*, a common name given to contracts for 1,000,000 ducats or *ecús*. Since there were four different *asientos* for that amount open at the time of the 1596 suspension, it is not possible to identify the exact one Di Negro had invested in.

[46] While Gio Girolamo Di Negro did not report any *juros* among his assets, most businessmen kept a diversified portfolio that included Spanish bonds backed by various income streams. For example, his relative Ambrogio Di Negro in 1560 had *juros* backed by the taxes on silk in Granada, by the internal customs of Seville, by the sales taxes of Carmona, by the royal taxes on wool, and by the yearly payments that the king received from the shepherds'guild (Ambrogio Di Negro, Libro Mastro, Archivio Doria 342).

new securities consisting of repackaged mortgages failed to provide risk diversification. Losses in a small corner of the financial system soon threatened to overwhelm it in its entirety. We go back to the 16th century to look at a successful example of how financial intermediation can "work", by offering a combination of attractive returns and relatively modest risk. In part, it did so by passing on some of the exposure from bankers to final investors.

Short-term lending to the Spanish Crown involved relatively large loans, underwritten by a handful of powerful financiers. The concentrated structure of lending facilitated co-ordination between bankers, and allowed them to put pressure on the Crown to settle on generous terms in times of crisis. To avoid the risk implied by a few bankers making very large loans, these were often parceled out into smaller packets, and sold on to private investors (for a fee).

We examine the performance of two such investments during Philip II's fourth and final default, in 1596. The Pichenotti – Di Negro partnership bought participations in two short-term loans to the king, underwritten by Agustín Spinola and Nicolás De Negro. They were affected by the payment stop. We carefully reconstruct the profitability of these two investments, and interpret them in the context of the investors' portfolio overall. The original underwriters achieved a full risk transfer – they only owed the partnership the respective proportion of the money that they received from the king. We find that losses were modest overall, and that these investments did not constitute a large fraction of the partners' wealth. While a sudden payment stop was not a small matter for investors, there was no domino effect – a wave of defaults as one creditor after another sees a large share of his assets disappear or turn illiquid.

By effectively selling "shares" in loans made to the King of Spain, Genoese bankers could achieve a dual objective. They continued to monopolize access to the short-term lending market. This was necessary for lending to be sustainable (Drelichman and Voth 2011a), and it cannot have been bad for profitability. At the same time, selling on parts of the loans reduced the principal lender's risk. In this way, securitization was remarkably successful: It provided both funds to the Spanish monarchy at the height of its powers, and the system weathered the effect of temporary, negative shocks such as the 1596 bankruptcy.

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